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# LIFE INSURANCE AND MEDICAL RESEARCH

HARRY E. UNGERLEIDER, M.D.
New York, New York

"THE BEST prophet naturally is the best guesser," wrote Thomas Hobbes a few centuries ago in *The Leviathan,* "and the best guesser, he that is most versed and studied in the matters he guesses at, for he hath most signes to guesse by."

We may adopt this terse quotation from Hobbes as a statement of the primary function of life insurance medicine. Unlike clinical medicine, which deals chiefly with problems of the present, insurance medicine is concerned to a greater degree with the remote future, specifically the life expectancy of the individual, and in this function the physician plays the role of prophet rather than healer. To a greater extent than in clinical medicine, one must necessarily rely more heavily on objective findings than on symptoms, and accordingly "signes to guesse by," to use Hobbes' phrase, assume considerable importance.

Some twenty years ago the Equitable Life Assurance Society of the United States installed a complete diagnostic laboratory as an adjunct to the examination of candidates for life insurance. I believe I can best illustrate our subject, "Life Insurance and Medical Research," by reviewing some of the activities of the diagnostic laboratory over the past two decades, for in this way we can review specific problems rather than discuss generalities.

Very soon after we began employment of the x-ray and electrocardiograph on a fairly broad scale, it became evident that precision apparatus does not necessarily supply precise information. This fallacy, unfortunately, still holds considerable sway in the domain of clinical medicine. The range of normal variation in almost all facets of the cardiovascular examination is very considerable. It became necessary to define standards of normality so that there would be a basis of reference in evaluating particular findings. Data derived from the study of patients in hospitals or private practice have obvious deficiencies in this respect. Observation of large groups of normal individuals studied in connection with applications for life insurance, on the other hand, provides an ideal opportunity to establish normal standards. Important contributions in such questions as standards of body build and blood pressure have been made through the co-operative efforts of the various insurance companies, under the Joint Committee of the Association of Life Insurance Medical Directors and Actuarial Society of America.

We first addressed our attention to the problem of heart size. It has long been an aphorism in cardiology that an enlarged heart is a diseased heart, but standards of heart size in the teleoroentgenogram were lacking until Dr. Charles Clark and I, in 1938, undertook a study of 1,460 individuals to establish standards for the transverse diameter of the heart based on weight and height.[24] In a subsequent study, standards were presented for the area of the frontal cardiac silhouette derived simply on a nomogram chart from measurement of the long and broad cardiac diameter.[25] On the same nomogram chart were like-

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Dr. Ungerleider is Medical Director of the Equitable Life Assurance Society of the United States.

wise presented the predicted transverse diameter of the heart and transverse diameter of the aortic arch silhouette, based on the Sheridan Index,[19] the utility of which we confirmed in a study of several hundred cases.[25] Employment of this nomogram chart makes possible the accurate detection of cardiac enlargement and aortic abnormality in very simple fashion. Measurements of the transverse diameter and of the frontal cardiac area up to 10 per cent above that predicted for weight and height are within allowable normal limits, but measurements exceeding this limit may be considered to indicate cardiac enlargement, since the distribution curve of normal values shows only a very small percentage or normal measurements above this range. Several clinical studies, such as those of Comeau and White,[3] Kurtz,[18] Gomez,[6] and pathological correlations by Sherman and Ducey,[22] have confirmed the value of these simple measurements of heart size, and these standards have achieved widespread application in clinical medicine as well as in the field of insurance. By way of illustrating the prognostic importance of cardiac enlargement, it may be mentioned that in subjects with an apical systolic murmur, the mortality among those with moderate cardiac hypertrophy is fully twice that of subjects whose hearts are not enlarged. The importance of recognizing cardiac enlargement is therefore clearly evident.

In hypertension, the presence of cardiac hypertrophy likewise is an extremely important prognostic consideration.[26] Serious complications, such as cardiac enlargement and decompensation, and arteriosclerotic changes in the coronary and cerebral vessels, are related more to the duration than to the degree of elevation of the blood pressure.[4] The presence of left ventricular hypertrophy provides a clue to the existence of elevated blood pressure of some duration. X-ray methods are not too satisfactory for the detection of early left ventricular hypertrophy, for hypertrophy, as such, is a matter of increase in thickness of the left ventricular myocardium of a few millimeters, and this change cannot be detected by any roentgenologic method. Accordingly, we undertook a study some years ago on a large group of subject studied in our diagnostic laboratory to establish specific electrocardiographic criteria of left ventricular hypertrophy and to compare the sensitivity of electrocardiographic versus x-ray methods in the detection of hypertrophy.[15] Briefly, we found the following to provide a good index of left ventricular hypertrophy:

1. An increase in voltage of the QRS complex best expressed as a sum of the R wave in lead I and the S wave in lead III. An amplitude of R1 plus S3 of 25 mm. or more is abnormal since 99 per cent of normal individuals with left axis deviation fall within this range. R1 exceeding 15 mm. is similarly indicative of left ventricular hypertrophy even in the absence of left axis deviation. This increase in voltage is the earliest sign of left ventricular hypertrophy.
2. Depression of the ST segment in lead I of any perceptible degree even as slight as one-half millimeter.
3. T wave changes in lead I.

Employing these criteria, it was found that the electrocardiogram provides the most sensitive index of left ventricular hypertrophy, more so than any roentgenologic method. In a mortality study carried out on 424 insurance applicants with hypertension, we found that in subjects with identical blood pressure readings, the mortality rate was twice as high when the electrocardiographic pattern of left ventricular hypertrophy was present as when the electrocardiogram was normal.[5] This study indicates that the stage of hypertensive disease, as determined by electrocardiographic evidence of left ventricular hypertrophy, is an important consideration in the evaluation of life expectancy. It is our practice to take electrocardiograms and teleoroentgenograms of the chest routinely when hypertension is present in candidates for life insurance. These procedures have helped greatly in appraising the selection of subjects with hypertension, and have made possible a more liberal policy in subjects with no evidence of cardiovascular disease, as well as helping to exclude unfavorable risks. Numerous other factors have important bearing on prognosis and life expectancy in hypertension, as we have discussed elsewhere. Particularly may be mentioned the rather benign course of hypertension in women as compared to men, which accords well with clinical experience.

Analysis of the extensive material available in our diagnostic laboratory has helped to establish criteria in evaluating two other frequent and important electrocardiographic abnormalities, i.e., extra systoles which are the most frequent of all arrhythmias, and the Q3 deflection.

In a study of 1,142 cases of extra systoles, several abormalities were found preponderantly in cases of organic heart disease.[27] Among these were: (1) the occurrence of premature beats of multi-focal origin; (2) frequent and persistent premature beats, particularly if they occur successively in short runs interrupting the regular rhythm; (3) a definite increase in the number, or a shower of extra systoles immediately following exercise; (4) occurrence of premature contractions and presence of a rapid heart beat; (5) inversion of the T wave in the regular beat which follows the extra systoles; (6) postextrasystolic pulsus alternans. In fully 58 per cent of subjects with premature beats, no objective evidence of heart disease whatsoever was found. The mere presence of extra systoles, therefore, is not to be regarded adversely, unless further examination discloses evidence of organic heart disease. However, since arrhythmias are frequently a clue to the presence of organic heart disease, it is good insurance medicine just as it is good clinical medicine to carry out a complete cardiovascular survey when an irregularity of a heart beat is detected on physical examination.

Few problems are more vexing to the cardiologist than the expression of a definite opinion of the significance of a Q3 deflection in the electrocardiogram in the absence of other signs of heart disease. A Q3 deflection may be the only residue of previous coronary occlusion, or may occur in perfectly normal individuals with transversely placed hearts; and in insurance selection particularly it is essential to make a clear-cut distinction if possible between these two groups. In a comparative analysis of two large groups, the first normal individuals with a Q3, and the second comprised of individuals on disability due to previous posterior wall infarction, certain signs were found to be helpful in distinguishing the normal from the pathological G3.[20] Any of the following electrocardiographic changes in conjunction with a Q3 denotes it to be of abnormal origin:

1. Absence of the S wave in lead I.
2. The presence of a Q wave in lead II exceeding one millimeter.
3. Flattening of the T wave in lead II below 1 mm. in amplitude.
4. Large amplitude of the Q wave in lead III where the Q wave exceeds 75 per cent of the amplitude of the tallest R wave in the limb lead.
5. A wide Q wave in lead III of at least 0.04 seconds in duration.
6. Deep inversion of the T wave in lead III exceeding 2.5 mm.
7. The presence of a sizable Q3 in individuals less than 5 per cent overweight.

The advent of unipolar limb leads has helped further in clarifying the significance of the Q3 deflection, a Q wave in the unipolar left leg lead indicating that the Q3 is abnormal. Recently, we have found that the presence of a Q wave in a unipolar lead taken over the left lumbar area posteriorly is even more sensitive than the unipolar left leg lead.

Another diagnostic procedure which has helped us greatly in insurance selection has been the roentgenkymogram, which records the pulsations of the heart and great vessels graphically on a single film. Roentgenkymograms are taken on all individuals studied in our laboratory above the age of forty. Abnormal pulsations along the left ventricular contour, of which the most significant is a reversal of pulsation or systolic expansion, occur in the majority of cases with previous attacks of coronary occlusion, and such changes in pulsation frequently are permanent.[18] On numerous occasions, we have found such abnormalities in the roentgenkymogram to provide the only clue to previous infarction, where the electrocardiogram was perfectly normal.

I have entered into a discussion of these diagnostic techniques at some length in order to delineate their sphere of usefulness in insurance selection. It has been necessary for us to establish specific criteria in the evaluation of these various signs. Clinical studies deal, by and large, with the grossly abnormal, whereas in insurance selection, one is confronted constantly with the normal and borderline, and this type of material lends itself very well to establishing standards of normality and abnormality. Apart from clinical applications, to which we shall presently refer, such research has shown its value abundantly in the field of insurance medicine. The more exact application of the various diagnostic procedures in cardiovascular disease has placed insurance selection on a much sounder scientific basis, making possible more equitable action, both to the insurance company and to the insured.

It is an important function of those engaged in insurance medicine to remain constantly

abreast of advances in clinical medicine. By way of example may be cited the recent simplification of ballistocardiography by Dock, which promises to make this method a routine part of examination of the heart in clinical cardiology. In our brief experience with one of these instruments loaned to us by Dr. Dock, we have been much impressed by its potentialities. Almost the first case in which we employed it was one with a classic history of angina pectoris where examination otherwise, including an exercise electrocardiogram test of coronary insufficiency, was entirely negative. The ballistocardiogram shows a marked respiratory variation in wave form which has been described in cases of coronary artery disease by Starr[23] and more recently by Brown.[2] There appears to be no doubt that ballistocardiography is by far the most sensitive method for recording the mechanical activity of the heart. Considerable study remains to be done to establish normal standards in various age groups and proper technique for recording the ballistocardiogram. Here, too, with its large source of material in various age groups, insurance medicine can make a substantial contribution of value, not only in its own field but in clinical application as well. The determination of various biological standards is an important contribution by insurance medicine to the field of clinical medicine. The annual proceedings of the Association of Life Insurance Medical Directors of America are replete with contributions by the Medical Departments of the various American life insurance companies in such fields as glucose tolerance, blood pressure, heart murmurs, in addition to studies such as we have described in detail.

Research in insurance medicine cannot be carried out profitably within an ivory tower of statistics. Like other types of research, it must have free access to the various modalities of investigation. Dealing so closely with problems of a clinical nature, a close liaison particularly is necsary with clinical material. Many of our studies have been carried out through the kindness of Dr. William Dock, Professor of Medicine at the Long Island College of Medicine in its Kings County Hospital Division, where there is ample material for clinical study. A full-time Fellow in Medicine is maintained by the Equitable in the Department of Medicine of the Long Island College of Medicine to assist in problems under clinical investigation.

Several studies undertaken to resolve problems in insurance medicine have led us inevitably into the domain of clinical medicine. Thus, recognition of the inadequacy of casual blood pressure readings in life insurance examinations among subjects with elevated blood pressure led to the evolution of very simple pressor and depressor tests. The breath-holding test originally described by Ayman,[1] and the hyperventilation plus carotid sinus pressure test, both of which we have described in detail elsewhere,[7] were found to correspond very closely with the cold pressor and the sodium amytal depressor tests, respectively. Employment of these very simple procedures makes it possible to determine the ceiling and basal levels of blood pressure within a very few minutes, and lends itself very well to routine office use in clinical practice in studying subjects with hypertension. Another pertinent illustration was an analysis of several thousand arterial sphygmograms recorded in our diagnostic laboratory which led to a study of the mechanism of pulsus alternans.[8] In the fields of electrocardiography and roentgenology of the heart, we have found constantly that our activities have extended into the clinical sphere. We have summarized our various observations on these subjects in the section on roentgenology of the heart in Myers and McKinlay's book[21] and in an article entitled "Newer Aspects of Clinical Electrocardiography" which appeared last year in the *New York State Journal of Medicine*.[9]

As we have already mentioned, research frequently extends beyond the horizons within which it is originally conceived. While our own scope of activities has been primarily concerned with questions of prognosis and diagnosis, which relate naturally to clinical problems, our work has carried us into investigations of cardiac physiology, and into therapy as well. Thus, employing the technique of roentgenkymography, to which we have already referred, simultaneously with diodrast contrast visualization of the heart chambers, we have been enabled to make observations on the dynamics of the interventricular septum.[10] We have shown that far from being a passive partition between the two ventricles, the interventricular septum plays a very significant dynamic rôle as an integral part of the left ventricle

in systolic ejection. In another physiololgical study, the principle of specific dynamic action was applied as a means of augmenting peripheral blood flow.[11] Glycine was used to augment heat production in the liver which was dissipated by an increase in blood flow to the extremities. These observations have been confirmed recently by Gustafson and his colleagues of the University of Michigan[18] who have indicated from extensive and extended experience with this simple amino acid that it is "a definite adjunct to the conservative treatment of peripheral vascular insufficiency."

Some of our studies have been directly in the field of therapy. For some time, we have been engaged in a project on the chemotherapy of tuberculosis. A new sulfone compound synthesized in our chemical laboratory has shown considerable promise in *in vitro* studies, and in experimental mouse tuberculosis experiments carried out in collaboration with Dr. Réné Dubos at the Rockefeller Institute for Medical Research.[12] More recently, in another series of tests, this work has been confirmed both in the mouse and in hamsters, and the drug was found to possess antituberculosis activity approximately twice that of para-aminosalicylic acid, and to be completely lacking in toxicity, both in acute and chronic toxicity studies. A study of its efficacy in man is now being undertaken.

Currently, we are actively engaged in studies on various aspects of arteriosclerosis. Some of you may be acquainted with our survey of arteriosclerosis which appeared in the *American Journal of Medicine* some months ago.[14] In a study we recently carried out on the significance of blood cholesterol, it was found that significantly less arteriosclerosis occurred in the subjects with a low level of blood cholesterol compared to those with so-called normal levels of cholesterol and with hypercholesterolemia.[28] These observations suggest that the so-called normal cholesterol is, in reality, a high cholesterol, and that the cholesterol level of the average American population is of such an order as to predispose to the development of arteriosclerosis. One of the difficulties in cholesterol studies has been obviated by the introduction by Kendall and his colleagues of a highly accurate method for determining its concentration in the serum,[17] a technique we are now employing in our laboratory. The prevention of arteriosclerosis is beyond question the Number 1 public health problem in the United States today. It will be of immense importance to establish whether, as our preliminary studies suggest, low levels of blood cholesterol confer protection against the development of arteriosclerosis, and if this is so, to find simple and effective means to maintain a low level of blood cholesterol.

I have tried to illustrate the subject of this talk on Life Insurance and Medical Research, by a description of our own research program at the Equitable Life Assurance Society of the United States, rather than to deal with this subject in generalities. In our own activities, we have had occasion to exploit the statistical material which is uniquely available to life insurance organizations, employing in our various studies data on ordinary life insurance and mortality experience, subjects receiving disability benefits, and our large group insurance coverage embracing large segments of the population in various industries. In addition, we have constantly utilized the facilities of our own diagnostic laboratory and chemical laboratory. During the war, our diagnostic laboratory served as a cardiac consultation station for the Naval Recruiting Bureau.[29] In other studies, we have employed the facilities of our hospital which provides medical service to our several thousand personnel. It has been our good fortune to maintain a close clinical liaison in our research program. Such varied facets of operation are very necessary, for research cannot be confined profitably within particular precincts, since it frequently leads in unexpected directions.

It must be apparent that life insurance has a very substantial interest in medical research and progress, for beyond the specific problems of insurance medicine, improvement in the health and longevity of the population is of vital concern to insurance. The need for fostering research has been recognized by the life insurance companies of the United States in the creation, in 1945, as a co-operative enterprise among the various companies, of the Life Insurance Medical Research Fund. This Fund makes available some two-thirds of a million dollars annually for fundamental research in cardiovascular disease. Under the guidance of a council composed of outstanding figures in American medicine, its

work already has proven most fruitful. Several hundred publications have appeared regarding work which was aided by the Fund, and up to 1948 Grants-in-Aid had been given to 165 research programs and seventy-one Research Fellowships had been awarded. It is expected that this project will prove increasingly rewarding in its objectives of stimulating research in fundamental aspects of rheumatic fever, hypertension, arteriosclerosis and other cardiovascular disorders. The Equitable as well as other insurance companies has actively supported the programs of such organizations as the American Heart Association. As you can see, our Society has had a program of research for many years. The insurance companies should, and are, contributing to the sum total of our medical knowledge in an increasing degree. There is no doubt in my mind that other companies are making contributions similar to those outlined. Scientific knowledge, from whatever source, should be welcomed by the medical profession. We in insurance medicine feel that we are not apart from those who are actively engaged in clinical medicine. Our problems are the same, and although our approach may be different, the common goal we seek is the prolongation of human life.

## Bibliography


1. Ayman, D. and Goldshine, A. D.: The breath-holding test: A simple standard stimulus of blood pressure. Arch. Int. Med., 63:899, 1939.
2. Brown, H. R., Jr., and de Lalla, V., Jr.: The diagnostic significance of the respiratory variation in the ballistocardiograph. Proc. 40th Ann. Meeting, Am. Soc. Clin. Investig., May, 1948.
3. Comeau, W. J., and White, P. D.: A critical analysis of standard methods of estimating heart size from roentgen measurements. Am. J. Roentgenol., 47:665, 1942.
4. Daley, R. M., Ungerleider, H. E., and Gubner, R.: Prognosis in hypertension, J.A.M.A., 121:383, 1943.
5. Daley, R. M., Ungerleider, H. E., and Gubner, R.: Prognosis and insurability of hypertension with particular reference to the electrocardiogram. Trans. Assoc. Life Ins. Med. Dir. America, 28:18, 1941.
6. Gomez, G. E.: Cardiac hypertrophy. J.A.M.A., 137:1297, 1948.
7. Gubner, R., Silverstone, F., and Ungerleider, H. E.: Range of blood pressure in hypertension. J.A.M.A., 130:325, 1946.
8. Gubner, R., and Ungerleider, H. E.: The mechansim of pulsus alternans. Presented at 2nd annual meeting, Am. Fed. Clin. Research, Minneapolis, May, 1942.
9. Gubner, R., and Ungerleider, H. E.: Newer aspects of clinical electrocardiography. New York State J. Med., 48: 2491, 1948.
10. Gubner, R., Ungerleider, H. E., and Hirshleifer, I.: Dynamics of the interventricular septum. Proc. 3rd Inter-American Cardiological Congress. Am. Heart J., 37:637, 1949.
11. Gubner, R., Di Palma, J. R., and Moore, E.: Specific dynamic action as a means of augmenting peripheral blood flow. Use of aminoacetic acid. Am. J. Med. Sci., 213:46, 1947.
12. Gubner, R., Dubos, R. J., Pierce, C., and Ungerleider, H. E.: 4-Caproylamino Diphenylsulfone, 4'-Aminomethylsulfonic acid sodium salt. Pharmacology and effect in experimental tuberculosis. J. Clin. Invest., 27:538, 1948.
13. Gubner, R., Crawford, J. H., Smith, W. A., and Ungerleider, H. E.: Roentgenkymography of the heart. Am. Heart J., 18:729, 1939.
14. Gubner, R., and Ungerleider, H. E.: Arteriosclerosis. A statement of the problem. Am. J. Med., 6:60, 1949.
15. Gubner, R., and Ungerleider, H. E.: Electrocardiographic criteria of left ventricular hypertrophy: Factors determining the evolution of the electrocardiographic patterns in hypertrophy and bundle branch block. Arch. Int. Med., 72:196, 1943.
16. Gustafson, J. R., Campbell, K. N., Harris, B. M., and Malton, S. D.: The use of glycine in the treatment of peripheral vascular disease. Surgery, 25:539, 1949.
17. Kendall, F., et al.: Demonstration of specificity of a simplified method for the determination of total cholesterol. Fed. Proc., 8:212, 1949.
18. Kurtz, C. M.: Book review. Am. Heart J., 26:573, 1943.
19. Sheridan, J. T.: The transverse diameter of the frontal aortic arch silhouette. Trans. Assoc. Life Ins. Med. Dir. America, 28:49, 1941.
20. Ungerleider, H. E., and Gubner, R.: The Q3 and QS3 deflections in the electrocardiogram: Criteria and significance. Am. Heart J., 33:807, 1947.
21. Ungerleider, H. E., and Gubner, R.: Roentgenology of the heart. Section in "The Chest and the Heart," edited by J. A. Myers and W. McKinlay. Springfield, Illinois: C. C Thomas, 1948.
22. Sherman, C. F., and Ducey, E. F.: Cardiac mensuration. Am. J. Roentgenol., 51:439, 1944.
23. Starr, I.: The ballistocardiograph. Harvey Lectures, 42: 194, 1947.
24. Ungerleider, H. E., and Clark, C. P.: A study of the transverse diameter of the heart silhouette with prediction table based on the teleoroentgenogram. Am. Heart J., 17: 92, 1939.
25. Ungerleider, H. E., and Gubner, R.: Evaluation of heart size measurements. Am. Heart J., 27:494, 1942.
26. Ungerleider, H. E., and Gubner, R.: The relation of heart size to prognosis: Modern concepts of cardiovascular disease, 41:3, 1943.
27. Ungerleider, H. E., and Gubner, R.: Extrasystoles and the mechanism of palpitation. Trans. Am. Therapeutic Soc., 42:169, 1942.
28. Ungerleider, H. E.; Gubner, R., and Rodstein, M.: Interrelationships between cholesterol, arteriosclerosis, diabetes and obesity. Proc. 22nd Scientific Session, American Heart Association, June, 1949.
29. Ungerleider, H. E.; Duhigg, T. F., and Gubner, R.: Examination of the heart in Navy applicants. U. S. Naval M. Bull., 41:441, 1943.


## LIVING CONDITIONS AND TUBERCULOSIS

The public welfare officer has long known that tuberculosis differs from other diseases affecting his clients because of the problem created in the patient's family even after the patient is out of the home. The worse the living conditions, the greater is the danger of infection, and the public welfare officer's clients are frequently those representing the worst living conditions in the community. The health officer and his nurses will watch the contact cases. It is their responsibility to see that regular and thorough examinations are given and that such families are trained in health education. These are the families that should have good housing, more adequate food than families in which there has been no tuberculosis, and no serious overwork or overstrain. Here the public welfare officer has a traditional opportunity. No one can assure good housing to any needy family today, tuberculous or nontuberculous, but the goal of decent housing should never be lost sight of, and it should be attained for the families of the tuberculous whenever possible. Adequate food can be supplied, and with sufficient economic security the members of the family should be saved from serious overwork. RUTH TAYLOR, *Nat. Tuberc. A. Bull.*, Oct., 1949.

# AN APPRAISAL OF MAJOR SURGERY IN A SMALL HOSPITAL

DAVID P. ANDERSON, M.D., F.A.C.S.
Austin, Minnesota

A REVIEW of 1000 consecutive major surgical operations, performed by the author and his colleagues of the Austin Clinic in the St. Olaf Hospital, Austin, Minnesota, has been undertaken as a background for the appraisal of general surgery in a small, non-metropolitan hospital. It is felt that such an appraisal is timely for several reasons:

1. It should be of interest to other physicians who practice surgery, either part time or as a specialty, in small communities.

2. It offers factual evidence to challenge the public claims of politicians who would have us believe that medical practice in predominantly rural areas, such as ours, is universally substandard.

3. It may be useful in re-evaluating training programs for general surgeons, to ascertain whether or not such surgeons are being adequately trained to cope with all the problems of general surgery, including traumatic surgery and the surgical subspecialties, as they are necessarily encountered in hospitals in non-metropolitan areas.

A complete classification of the 1000 operations in this survey is given in Table I. The selection of operations for classification as "major" procedures has been entirely arbitrary. Multiple-stage operations have been listed only once, and combined operations have been listed only under the title of the primary procedure.

There were twenty-one hospital deaths in this series. This operative mortality of 2.1 per cent compares favorably with reports from other general hospitals[4] and is an improvement over the mortality rate of 3.9 per cent in 785 cases reported by the author in 1942.[1] A detailed analysis of the deaths in this series is given in Table II. There were no deaths attributable directly to the anesthetic. In two patients, technical operative factors were directly or indirectly responsible for the deaths: in one case there was partial obstruction, although no leakage, at the site of an end-to-end anastomosis of the ileum; and in another case a fairly large common-duct stone was inadvertently overlooked in performing a choledochostomy on a critically ill patient. Surgical shock was listed as the primary cause of death in three patients. In each instance the age of the patient, the nature of his illness, or his cardiovascular status prior to operation influenced the unfavorable postoperative course, and in no case was the use of whole blood transfusions or other supportive therapy neglected. Pulmonary embolism, proven or strongly suspected in four patients who died, and present as a serious nonfatal postoperative complication in three other patients, has been one of our greatest

TABLE I. ONE THOUSAND CONSECUTIVE MAJOR SURGICAL OPERATIONS IN A SMALL NON-METROPOLITAN HOSPITAL

| Operation | Number of Operations |
|---|---|
| *Head-Neck-Faciomaxillary Surgery* | |
| Craniotomy (Subdural hematoma, extradural hematoma and depressed skull fractures) | 4 |
| Thyroidectomy | 14 |
| *Breast and Chest Surgery* | |
| Mastectomy, radical | 17 |
| Thoracotomy (Lung abscess and empyema) | 5 |
| Subdiaphragmatic abscess, I & D of | 1 |
| Lobectomy, pulmonary | 1 |
| *Gastrointestinal and General Abdominal Surgery* | |
| Gastric resection | 15 |
| Pyloroplasty | 11 |
| Gastroenterostomy | 3 |
| Perforated peptic ulcer, closure of | 2 |
| Intestinal resection, large and small bowel | 21 |
| Cecostomy | 1 |
| Colostomy | 8 |
| Rectal perforation, closure of | 1 |
| Appendectomy (including perforative appendicitis) | 267 |
| Appendectomy and Meckel's diverticulectomy | 5 |
| Appendectomy and excision of urachus | 2 |
| Appendiceal abscess, drainage of | 7 |
| Abdominal exploration | 6 |
| Intestinal obstruction, simple, release of | 6 |
| Herniorrhaphy, elective | 162 |
| Herniorrhaphy, strangulated | 15 |
| Herniorrhaphy, strangulated, with bowel resection | 2 |
| Splenectomy | 4 |
| Fixation of recurrent prolapsed rectum | 1 |
| Duodenal diverticulectomy | 1 |
| Intussusception and Meckel's diverticulectomy | 1 |
| *Biliary Tract and Liver Surgery* | |
| Liver, closure of traumatic rupture of | 3 |
| Cholecystostomy | 4 |
| Cholecystectomy | 90 |
| Cholecystectomy and choledochostomy | 30 |
| Choledochostomy | 6 |
| Choledocho-duodenostomy | 1 |
| *Gynecological Surgery* | |
| Myomectomy | 1 |
| Perforated uterus, closure of | 1 |
| Hysterectomy, abdominal | 57 |
| Hysterectomy, vaginal | 25 |
| Perineorrhaphy and cystocele repair | 36 |
| Salpingectomy, salpingo-oöphorectomy and oöphorectomy | 46 |
| Uterine suspension | 13 |
| Cesarean section | 17 |
| Vulvectomy, radical | 3 |
| *Genito-Urinary Surgery* | |
| Nephrectomy and nephroureterectomy | 2 |
| Plastic operation, kidney pelvis | 2 |
| Uretero- and pyelolithotomy | 2 |
| Uretero-vesical anastomosis | 1 |
| Cystectomy | 1 |
| Penectomy, radical | 1 |
| *Orthopedic and Traumatic Surgery* | |
| Open reduction, major fractures | 68 |
| Amputations, major | 5 |
| Bone grafts, major | 2 |
| Total | 1000 |

Presented at the annual meeting of the Southern Minnesota Medical Association, Red Wing, Minnesota, September 12, 1949.

worries. Early ambulation—and that means the day of or the day following operation—has not greatly influenced the incidence of this complication for us. Recently we have instituted the routine use of dicumarol therapy postoperatively in all major surgical cases except those where the nature of the procedure is contraindicative.

TABLE II. OPERATIVE DEATHS IN 1000 CONSECUTIVE MAJOR OPERATIONS

| Patient Age | Operative Diagnosis | Operation | Primary Cause of Death | Interval |
|---|---|---|---|---|
| A.F. 68 | Fracture neck of femur | Internal fixation | Pulmonary embolus | 15 days |
| A.M. 86 | Fracture neck of femur | Internal fixation | Coronary occlusion | 22 days |
| C.B. 66 | Fracture neck of femur | Internal fixation | Bronchopneumonia and Parkinson's Disease | 8 days |
| B.C. 65 | Fracture neck of femur | Internal fixation | Arteriosclerotic Parkinsonism | 2 months |
| L.U. 89 | Intertrochanteric fracture of femur | Open reduction | Shock | 6 hours |
| L.R. 79 | Intertrochanteric fracture of femur | Open reduction | Cerebral thrombosis | 5 days |
| J.S. 58 | Carcinoma of stomach | Exploration | Carcinomatosis | 23 days |
| C.K. 55 | Carcinoma of stomach -acute perforation | Gastric resection | Shock-aspiration of vomitus | 6 hours |
| G.H. 63 | Carcinoma of stomach -acute perforation | Gastric resection | *Pulmonary embolus | 12 days |
| O.L. 75 | Carcinoma of stomach | Gastric resection | Acute auricular fibrillation-shock | 18 hours |
| L.J. 32 | Chronic duodenal ulcer with massive hemorrhage common duct obstruction | Gastric resection and choledochostomy | *Pulmonary embolus | 10 days |
| A.K. 42 | Cholelithiasis | Cholecystectomy | Pulmonary embolus | 8 days |
| J.W. 60 | Cholelithiasis-common duct calculus | Cholecystectomy -choledochostomy | Suppurative cholangitis secondary to residual common duct calculus | 6 weeks |
| G.N. 83 | Acute cholecystitis with perforation-common duct calculus | Cholecystectomy -choledochostomy | Bronchopneumonia | 27 days |
| A.M. 49 | Chronic portal cirrhosis | Exploration | Esophageal hemorrhage | 6 days |
| L.F. 67 | Ulcerated duodenal diverticulum with massive hemorrhage | Diverticulectomy | Shock-? acute cardiac failure | 1 hour |
| J.M. 62 | Strangulated hernia-gangrene and perforation of bowel | Small bowel resection | Peritonitis | 2 days |
| E.W. 60 | Acute intestinal obstruction -gangrene of ileum | Small bowel resection | *Mesenteric thrombosis -partial obstruction at anastamosis | 14 days |
| J.G. 78 | Incarcerated hernia | Herniorrhaphy | Bronchopneumonia and Parkinson's Disease | 10 days |
| P.G. 75 | Carcinoma of sigmoid -complete obstruction | Cecostomy | *Carcinomatosis | 6 days |
| L.A. 73 | Arteriosclerotic gangrene bilateral, ? embolic | Second low-thigh amputation | ?Pulmonary embolus auricular fibrillation | in OR |

*Indicates autopsy.

### Surgery in the Aged

A special survey has been made of the seventy-eight major operations performed on the patients seventy years of age and over in this series. This survey is presented in Table III. There were eight hospital deaths in this group, or a mortality rate of 10.3 per cent. As is to be expected, cardiovascular complications were the primary cause of death in the majority of the eight elderly patients who did not survive operation.

Major operations must frequently be undertaken in aged patients in spite of the increased risks in the older age group. We believe that such patients should be treated in their home communities, whenever possible, as elderly individuals do not adjust well to environmental changes and often do not tolerate or cannot be persuaded to accept transfer to distant medical centers.

No specific sociological survey has been made of this group, although such a study might prove interesting, but it is known that many of these elderly patients have been restored to comfortable and useful activity. Very few are dependent, socially useless wards of the state. One man, now seventy-nine years of age, who has had two bowel resections for intestinal obstruction during the past ten years, is active in business and apparently more prosperous than ever before in his career. A woman, now approaching ninety years of age, who fortunately is financially independent, is also physically independent, active, and free of pain one year after an internal fixation of a fracture of the neck of the femur. When last examined one year after a subtotal gastrectomy for an early carcinoma of the pylorus, a woman of eighty-six years was doing her own housework and complaining only of minimal lumbar arthritic pains which were aggravated by working in her garden! Several survivors in this group are farmers who still actively participate in the management of their farms. Even a few such recoveries—and the cases cited above are not isolated examples—justify a conscientious effort on the part of the

surgeon to prolong life and make it more pleasant for those patients who have outlived their allotted three-score years and ten.

TABLE III. SURGERY IN THE AGED

| Operative Procedure | Number of Cases and Deaths by Age Groups | | | Total |
|---|---|---|---|---|
| | Ages 70-80 | Ages 80-90 | Over 90 | |
| Appendectomy, perforated appendix | 2 | 1 | 0 | 3 |
| Amputation, low thigh | 2(1) | 0 | 0 | 2(1) |
| Cecostomy | 1(1) | 0 | 0 | 1(1) |
| Cholecystectomy | 4 | 0 | 0 | 4 |
| Cholecystectomy-choledochostomy | 2 | 1(1) | 0 | 3(1) |
| Choledochojejunostomy | 1 | 0 | 0 | 1 |
| Cystectomy and ureterectomy, partial | 0 | 1 | 0 | 1 |
| Colon resection | 2 | 1 | 0 | 3 |
| Exploratory, abdominal | 1 | 0 | 0 | 1 |
| Fracture, femur, internal fixation | 9(1) | 9(2) | 1 | 19(3) |
| Fracture, tibia, open reduction | 1 | 0 | 0 | 1 |
| Gastric resection | 2(1) | 1 | 0 | 3(1) |
| Gastroenterostomy | 2 | 0 | 0 | 2 |
| Herniorrhaphy, elective | 9 | 0 | 0 | 9 |
| Herniorrhaphy, strangulated | 5(1) | 0 | 1 | 6(1) |
| Herniorrhaphy, with bowel resection | 0 | 1 | 0 | 1 |
| Intestinal obstruction, release of | 1 | 0 | 0 | 1 |
| Intestinal obstruction, with resection | 1 | 0 | 0 | 1 |
| Mastectomy, radical | 3 | 1 | 0 | 4 |
| Nephrectomy | 1 | 0 | 0 | 1 |
| Ovarian carcinoma, excision of | 1 | 0 | 0 | 1 |
| Penectomy, radical | 1 | 0 | 0 | 1 |
| Vaginal hysterectomy and plastic | 9 | 0 | 0 | 9 |
| Totals | 60(5) | 16(3) | 2 | 78(8) |

Note: Hospital deaths are denoted by ( ).
Mortality rate—10.3%.

## Pediatric Surgery

An analysis of the major surgery among the infants and children under twelve years of age in this series is presented in Table IV. There were no operative deaths in this group of 134 patients. It is interesting to note that fifty-one of these children were from strictly rural areas. The excellent preoperative diagnosis and care of these children by the referring general practitioner is largely responsible for the favorable operative record in this group.

Ladd and Gross[2] have demonstrated that particular care is required in the surgical management of the infant and small child. The general surgeon who must operate upon these tiny patients should make every effort to prepare himself specifically for the task. A certain temperamental, as well as a technical, readjustment must be made in the change from adult to pediatric surgery, and more careful attention must be given to altered physiology.

TABLE IV. SURGERY IN INFANTS AND CHILDREN

| | |
|---|---|
| Appendectomy, simple | 59 |
| Appendectomy and Meckel's diverticulectomy | 2 |
| Appendectomy and excision of urachus | 1 |
| Appendectomy, perforative appendicitis | 10 |
| Duodenojejunostomy (congenital atresia) | 1 |
| Decompression, acute subdural hematoma | 1 |
| Fracture, skull, depressed, elevation of | 2 |
| Fracture, long bones, open reduction of | 4 |
| Herniorrhaphy, elective | 32 |
| Herniorrhaphy, incarcerated or strangulated | 5 |
| Intussusception and Meckel's diverticulectomy | 1 |
| Liver, suture of traumatic laceration | 3 |
| Pyloroplasty, congenital pyloric stenosis | 11 |
| Splenectomy | 1 |
| Uretero-pelvic stricture, plastic repair of | 1 |
| Total | 134 |

## Surgery in Appendicitis

A consideration of some of the various operations and specific surgical diseases covered by this survey is of interest. The most common disease requiring surgical treatment is appendicitis. In this series, there were 281 operations for appendicitis, exclusive of incidental appendectomies performed during the course of other operations. There have now been 503 consecutive operations for appendicitis, including all stages of this disease, performed during the time that the author has been the surgeon for the Austin Clinic. There have been no deaths in this series of 503 operations.

A discussion of the surgical management of appendicitis is not within the scope of this paper, but a few brief comments may be in order.

1. We do not practice the policy of "when in doubt, operate." There is no question of the fact that acute appendicitis should be treated by early operation, but this does not license the surgeon to operate indiscriminately on all patients with right lower abdominal pain. The majority of cases of acute appendicitis can be accurately diag-

nosed preoperatively. In doubtful cases, re-examination after the administration of a small dose of morphine may aid in the diagnosis. In other cases, we have not hesitated to observe the patient under hospital management and supportive therapy for periods up to twenty-four hours. We must frankly admit that operation has thus been delayed in a few cases of acute appendicitis, although without any apparent ill-effects, and that an occasional patient with a mild acute appendicitis has recovered without the benefits of operation. However, this policy has saved us the embarrassment on many occasions of performing an unnecessary or even a harmful operation.

2. In the presence of local or general peritonitis of appendiceal origin, it has been our policy to perform an appendectomy and drain the peritoneal cavity with a soft Penrose drain. An exception is made in those cases where a large, localized appendiceal abscess is present when the patient is first examined. Under such circumstances, the abscess is drained—preferably through the rectum if it points in the pelvis—and the patient is advised to have an elective appendectomy in three to four weeks. We do *not* subscribe to the so-called expectant treatment of perforative appendicitis, although a few hours delay for the preoperative preparation of a toxic or dehydrated patient is usually advantageous.

### Surgery of the Gall Bladder and Biliary Tract

Disease of the gall bladder and biliary tract is of special interest to surgeons. In this series there were 131 operations on the gall bladder and bile ducts. The three deaths in these 131 operations give an operative mortality of 2.3 per cent for surgery of the biliary tract. We consider this mortality rate too high, and can justify it only by a critical review of the three deaths, as reported in Table II, and by the fact that the statistical results in our biliary surgery prior to this series have been much more favorable.

It will be noted that we have explored the common duct in 28 per cent of the operations on the biliary tract. Definitely positive findings, chiefly the presence of calculi, are encountered in about half of the cases in which the common duct is explored. The frequency with which we explore the common duct is fully justified by the fact that many common-duct calculi are thereby detected which could have been easily overlooked. We have so often discovered "silent" common-duct stones—as many as forty-four within the duct in one case—that we now fully appreciate the stand that Lahey[3] has taken for years in urging that the common and hepatic ducts be explored in up to 50 per cent of all gall-bladder operations. The procedure itself, in the hands of an experienced surgeon, does not increase the mortality and morbidity of biliary tract surgery, and adds only a few days to the patient's total recovery period.

### The Surgical Treatment of Hernia

Hernia is another affliction which is of never-ending surgical interest. It is a common ailment, which in this series was encountered in 178 of 1000 major operations. The fact that the recurrence rate after hernia operations remains high, even in the hands of otherwise competent surgeons, is a particular challenge to the general surgeon in a small community to continually improve his results. Large clinics can readily absorb the embarrassment of an occasional recurrence after herniorrhaphy, but the individual surgeon in a small community must have a hernia recurrence rate which approaches nil, an accomplishment which is more than theoretically possible.

We have found one procedure helpful in evaluating the technical efficiency of our hernia repairs, a procedure which we have never seen described in the surgical literature: Under local anesthesia, which is our anesthetic of choice in primary hernia repairs, the patient is instructed to give a forceful cough during various stages of the operation. The strength of the repair can thus be demonstrated, and if stainless steel wire sutures are employed, one can be reasonably certain that the repair will remain firm until tissue healing is complete. With this assurance of a firm repair of the hernia, we have no misgivings in urging early ambulation in our cases. The patient is allowed to walk to the bathroom at any time after the operation, thus making postoperative catheterization a rare necessity. The average patient is discharged from the hospital on the third to fifth postoperative day. Sedentary occupations may be resumed in ten days, light work in two to three weeks, and unlimited activity is permitted after four weeks. We have had no known recurrences in the herniorrhaphies reported in this series.

### Gastrointestinal Surgery

There are two aspects of gastrointestinal surgery that we would like to mention briefly, although with some hesitation.

1. We have adopted, during the past two years, a modification of the non-operative treatment of acute perforated peptic ulcer originally described by British surgeons. Our experience has been limited to ten cases thus far, so that we cannot speak authoritatively nor can we urge others to follow our example. However, we have been so favorably impressed by the clinical course of these patients that we are inclined to believe that this method of treatment may prove superior to the operative treatment, at least in selected cases. We have had no deaths in our cases, and in each incidence the recovery has been much smoother than we would have anticipated with the operative method of treatment. One word of caution should be injected: this non-operative treatment is strictly a surgical problem, and it demands the careful personal supervision of the surgeon.

2. In re-establishing continuity between segments of the intestinal tract, including the colon, we have used a so-called "open" type of anastomosis in all cases with good results. This fact is mentioned because numerous reports from various surgeons with wide experience advocate so many different types of "closed" anastomoses and multiple-stage operations that the general surgeon with a limited volume of gastrointestinal surgery is left in a quandary trying to decide which technique to adopt. Again we cannot speak with authority, because of our limited experience in comparison with statistical reports from large clinics, but we agree with those surgeons who contend that sepsis and peritonitis usually result from a technically poor suture line and not from the minimal contamination that theoretically occurs with an open anastomosis. We believe that the average surgeon can perform a more secure anastomosis, free from the danger of leakage, by an "open" technique.

### Gynecologic Surgery

Gynecological operations accounted for approximately one in five of all major operations in this surgery. This high incidence of gynecologic surgical problems makes it essential that the general surgeon who practices in a small community, where specialists in gynecologic surgery are not always available, be well trained in this subspecialty. Training programs that omit such training for the general surgeon are to be condemned. It also seems to us that the man who is trained as a specialist in gynecologic surgery should have an adequate background of general surgery, as the arbitrary division of the abdomen of the female at the brim of the pelvis is not always respected by intra-abdominal disease processes.

There were no deaths in the 199 gynecological operations in this series, and we now have a total of 104 consecutive hysterectomies without a death.

### Traumatic Surgery

The management of injuries is another aspect of general surgery that demands our consideration. In non-metropolitan areas, the general practitioner and the general surgeon are responsible for the treatment of injuries of all types. Automobile, farm and industrial accidents account for our more serious injuries. These often tax the skill of the surgeon to the utmost, and quite often he finds himself becoming involved, of necessity, in surgical problems that require a fundamental knowledge of the various surgical subspecialties. The treatment of compound fractures, primary tendon and nerve suture, and the care of internal visceral injuries are commonplace in a general surgical practice in a small community. A great variety of fractures of the long bones and crushing fractures of the vertebrae are encountered. Intracranial injuries are frequent problems, and an occasional depressed skull fracture or a localized intracranial hemorrhage will require the general surgeon to perform an emergency cranial operation. Since neurosurgeons, orthopedists and other such specialists are not universally available, general surgeons must be trained who are capable of administering skilled early definitive treatment to injuries of all types.

### Conclusion

A survey of 1000 consecutive major surgical operations in a small non-metropolitan hospital has been presented, and an appraisal made of the various aspects of general surgery in a small community. Emphasis has been placed upon the necessity of maintaining training programs that will adequately prepare surgeons for the broader scope of general surgery as it is encountered in areas away from metropolitan medical centers.

*(References on Page 95)*

# MATERNAL AND INFANT MORTALITY STUDY IN A SMALL GENERAL HOSPITAL

ROBERT R. WRIGHT, M.S., M.D.
Austin, Minnesota

MEDICAL LITERATURE contains many reports of maternal and infant mortality studies. A large majority of the published studies come from large hospitals and clinics in metropolitan areas. There is a dearth of published material from the small general hospitals in the rural areas of our country.

Concurrent with the trend toward socialization of medical practice, maternal and infant care comes into sharp focus. Published figures of maternal and infant mortality are no longer the sole property of medical literature, for they now appear in our morning paper, in reports to the President, and in the proceedings of our legislative bodies.

A personal interest in determining the quality of obstetrical, infant, and premature infant care provided by private practicing physicians in a small general hospital provided the stimulus for this study. A comparison with published results from other hospitals in representative sections of our country is included.

This study is based on the hospital records of 2,519 consecutive deliveries in the St. Olaf Hospital, Austin, Minnesota, during the years 1946, 1947, and 1948. This general hospital serves the city of Austin, with a population of about 30,000, and a large surrounding rural area, making a total population of about 50,000. The population is almost entirely white. The hospital has a bed capacity of 105 with twenty-five bassinets. The average adult occupancy for the three-year period of this study was 76 per cent.

The hospital is staffed by thirty-three physicians, twenty-one of whom practice obstetrics. During the years studied, all of the work was done by general practitioners. There are no interns or residents in the hospital, and prior to January 1, 1949, there was no obstetrical specialist on the staff.

In this group of 2,519 deliveries there was one maternal death, a mortality rate of 0.039 per cent (Table I). This maternal mortality figure compares most favorably with other published figures. Newberger,[5] in an analysis of maternal mortality in the state of Illinois during 1943, found a mortality rate of 0.27 per cent. The Department of Labor,[7] in a survey of the United States for the year 1940, found a maternal mortality of 0.376 per cent. Connor,[1] in a comparable study, reports a mortality of 0.20 per cent among mothers delivered in two small general hospitals in the state of Washington.

TABLE I. MATERNAL AND INFANT MORTALITY

| Source | Total Deliveries | Maternal Deaths | Maternal Mortality |
|---|---|---|---|
| St. Olaf Hospital 1946-1948 | 2,519 | 1 | 0.039% |
| U. S. Dept. of Labor | | | 0.306% |
| Newberger, Illinois State Statistics, 1943 | | | 0.27 % |
| Connor (Wenatchee, Washington, 1944-1946) | 2,500 | | 0.20 % |

TABLE II. STILLBORN INFANT MORTALITY

| Hospital | Total No. Live Births | No. Stillbirths | Rate/1000 Live Births |
|---|---|---|---|
| St. Olaf Hospital 1946-1948 | 2490 | 40 | 16.06 |
| Philadelphia Lying-In | 1009 | 25 | 24.8 |
| Gaston Hospital, Memphis | 355 | 20 | 56.3 |

The cause of death in the one fatality in the St. Olaf Hospital study was acute yellow atrophy of the liver. It is an interesting and significant commentary that there were no deaths nor serious complications due to puerperal sepsis or toxemia in the three years studied. This, considered with the very low maternal mortality figure, speaks favorably for the obstetrical care afforded the patient by the general practitioner in the small general hospital in this rural area.

The infant mortality rate in this study was found to be favorable in comparison with other reports. There was a total of forty stillborn infants in the three-year study, with a stillborn infant mortality rate of 16.06 per 1000 live births (Table II). Hingson et al[3] report a stillborn infant mortality rate of 24.8 per 1000 live births. Connor reports a stillborn mortality rate of 1.12 per cent, but uses his figures in relation to total babies born, instead of in relation to live births, as is the customary procedure in statistical analyses. Using similar computation, the present study reveals a stillborn mortality rate of 1.56 per cent of total babies born. In a study of caudal anesthesia

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TABLE III. NEONATAL INFANT MORTALITY

| Source | Total No. Live Births | No. of Deaths | Rate 1000 Live Births |
|---|---|---|---|
| St. Olaf Hospital 1946-1948 | 2490 | 54 | 21.7 |
| Philadelphia Lying-In 1942-1945 | 1009 | 21 | 20.8 |
| Gaston Hospital 1946 | 355 | 6 | 16.9 |
| Minn. Dept. of Pub. Health—1947 | | | 28.6 |
| U. S. Dept. of Pub. Health—1947 | | | 34.0 |

TABLE IV. NEONATAL INFANT MORTALITY CAUSE OF DEATH

| Cause | St. Olaf Hospital |
|---|---|
| Prematurity | 26 |
| Atelectasis | 11 |
| Pneumonia | 5 |
| Congenital deformity | 3 |
| Erythroblastosis fetalis (fetal edema) | 1 |
| Anemia of newborn (not Rh factor) | 1 |
| Intracranial hemorrhage | 1 |
| Unclassified | 6 |
| Total neonatal deaths | 54 |

TABLE V. PREMATURE MORTALITY

| Period | No. of Live Births | No. Weighing 2500 gm. or Less | Incidence of Premature Births | Fatality Rate | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Less than 1000 gm. 2-3 | 1000-1500 gm. 3-5 | 1501-2000 gm. 4-6 | 2001-2500 gm. 5-8 | Total 2500 gm. or-Less 5-8 |
| St. Olaf Hospital 1946-1948 | 2490 | 148 | 5.94 | 70.6 | 64.7 | 25.7 | 8.8 | 16.0 |
| Long Island College Hospital—1940-1945 | 9084 | 637 | 7.0 | 92.0 | 41.4 | 17.3 | 4.6 | 16.3 |

in obstetrics, Hingson reports a remarkable stillborn mortality rate of 9.1 per 1000 live births in one series. However, a control group using general anesthesia at the same hospital had a stillborn mortality rate of 24.8 per 1000 live births. In the St. Olaf Hospital study, general anesthesia was universally used during the second stage of labor. Caudal anesthesia was not used in any of the deliveries during the three-year period of this study.

There was a total of fifty-four neonatal deaths in the St. Olaf Hospital Study, giving a neonatal infant mortality of 21.7 per 1000 live births (Table III). Hingson reports a neonatal infant mortality of 20.8 per 1000 live births. The Minnesota Department of Health reports a neonatal infant mortality in 1947 of 28.6 per 1000 live births. The United States Department of Health in the same year reports a neonatal infant mortality of 34.0 per 1000 live births for the entire United States. An analysis of the cause of death in the neonatal group in this study is given in Table IV.

Of the neonatal deaths, forty (74.0 per cent) occurred in premature infants. By definition, a premature infant is any infant born alive who weighs 2,500 grams (5 pounds 8 ounces) or less, whose heart beats or who moves. This definition is accepted by the American Academy of Pediatrics.[6] In this study, the premature mortality rate for the three-day period was 16.0 per 1000 live births (Table V). Koch et al[4] report a premature mortality rate of 16.3 per 1000 live births in a study of 9,084 live births at the Long Island College Hospital from 1940 to 1945. Their premature mortality rate of 16.3 per 1000 live births was achieved following a concerted attempt to improve the premature care in the Long Island College Hospital. A previous study in the Long Island College Hospital, covering the period 1924-1940, had revealed a premature mortality rate of 28.4 per 1000 live births. A tabulation of the premature fatality rates in the four standard weight division groups will be found in Table V. The four standard weight division groups include those infants weighing less than 1,000 gm., 1,001 to 1,500 gm., 1,501 to 2,000 gm. and 2,001 to 2,500 gm. A comparison of the results of the study reported herein with the results of the Long Island College Hospital is presented in Table V. It should be noted that the fatality rate in premature infants weighing less than 1,500 gm. (3 pounds 5 ounces) is high. The efforts of the obstetrical practitioner to carry the mother through to the period when an infant's weight would be above 1,500 gm., and preferably above 2,000 gm., would be compensated by a more favorable premature mortality rating.

Of the 2,519 deliveries, sixteen were by cesarean section, an incidence of only 0.63 per cent. There were two infant deaths in the sixteen infants delivered by cesarean section, resulting in an infant mortality of 12.5 per cent. Ehrenberg,[2] in an extensive study of cesarean sections performed in the hospitals of Minneapolis, Minnesota, reports an incidence of 2.6 per cent, with an infant mortality of 3.9 per cent. Connor reports an incidence of 2.96 per cent in cesarean sections done in Wenatchee, Washington, with an infant mor-

tality of 2.0 per cent. The high infant mortality in cesarean sections in this study is of little statistical significance because of the small number of sections performed. Of the two infant fatalities, one was due to abruptio placentae, and the other was due to atelectasis and prematurity in a case of marginal placenta praevia.

TABLE VI. CESAREAN SECTIONS

| | St. Olaf Hospital 1946-1948 | Minneapolis (Ehrenberg) 1946 | Washington (Connor) 1944-1946 |
|---|---|---|---|
| Total deliveries | 2519 | 15,556 | 2500 |
| No. cesarean sections | 16 | 405 | 74 |
| Incidence per cent | 0.63 | 2.6 | 2.96 |
| Maternal mortality | 0.00% | 0.49% | 0.00% |
| Infant mortality | 12.5% | 3.9 % | 2.0 % |

All cesarean sections were of the classical type. All were performed by general surgeons and general practitioners who do obstetrical surgery. The low incidence of cesarean sections and the apparent reticence of the staff to perform the lower cervical section is to be noted in this study. The absence of any maternal mortality and the low morbidity experienced make a favorable commentary.


## Summary

1. A survey of the maternal and infant mortality in 2,519 consecutive deliveries by general practitioners in a small general hospital is presented.

2. The statistics as revealed in this study are compared with published statistical material from representative sections of the United States.

3. It is apparent in this study that the incidence of cesarean section is low. It is suggested that the cesarean section should occupy a greater role in the obstetrical care of the patient in this locality.

4. The general practitioner in the small general hospital can secure excellent maternal and infant mortality results in obstetrics.


## References


1. Connor, C. E.: Obstetrics in the small general hospital. Surg., Gynec. & Obst., 86:499-501, 1948.
2. Ehrenberg, C. J.: A survey of cesarean section in Minneapolis, Minnesota, in 1946. Minnesota Med., 31:987, (Sept.) 1948.
3. Hingson, R. A., et al: Newborn mortality and morbidity with continuous caudal analgesia. J.A.M.A., 136:221-229, (Jan. 24) 1948.
4. Koch, L. A., et al: Reduction of mortality from premature birth. J.A.M.A., 136:217-221, (Jan. 24) 1948.
5. Newberger, C.: Statistical study of obstetrical activities in Illinois hospitals during 1943. Illinois M. J., 87:136-144, 1945.
6. Round Table Discussion on Prematurity. J. Pediat., 8:104-130, (Jan.) 1936.
7. U. S. Department of Labor Bulletin. Maternal Mortality for the Year 1940.


## SIGHT CAN BE SAVED

"From 50 to 75 per cent of all blindness is preventable," declares Dr. Franklin M. Foote of New York City, director of the National Society for the Prevention of Blindness. Dr. Foote was the guest speaker at the Minnesota Society for the Prevention of Blindness at their annual meeting held in Minneapolis, November 28.

"In the United States there are 260,000 blind. One out of every seven has become blind as the result of an eye injury, the majority of which could have been prevented. The other six attribute their blindness to eye diseases, many of which could have been corrected if taken in time," said Dr. Foote.

A field in which much educational work has been done and where there is great need for work to continue is in informing the public about glaucoma. Dr. Foote pointed out that there are 800,000 cases of glaucoma in the United States which have not yet come to the attention of eye specialists. "The big challenge which glaucoma presents is the problem of early diagnosis. During the late stages the patient's central vision fails, and when this takes place the condition is so advanced that there is little hope of retaining useful sight. Vision which is lost in chronic simple glaucoma is lost forever. But when treatment is given in the early stages it is possible to retain what vision has not been lost."

According to Dr. Foote, a study of national and state figures reveals that we are now spending $56,000,000 a year to help the blind, but less than half a million for preventing blindness. "The average pension that a blind person in Minnesota receives," commented Dr. Foote, "is less than $58 per month, a small amount for a person who is sightless. We should indeed increase the amount we are spending for the blind, but more important still, we should increase many times what we are spending for the prevention of blindness."—*Minnesota's Health,* December, 1949.

# THE RATIONALE OF BLOOD TRANSFUSIONS IN THE TREATMENT OF THE TRUE TOXEMIAS OF PREGNANCY

R. T. La VAKE, M.D.
Minneapolis, Minnesota

IN TWO FORMER reports to the Minnesota Academy of Medicine,[1,2] clinical, laboratory, autopsy, and experimental data were presented which converge, in proof, upon the hypothesis that the true toxemias of pregnancy are diseases caused by cell substances from the products of conception; cell substances that are not possessed by the cells of the mother and are toxic to her cells.

The cell substances involved are the organic compounds implicated in blood incompatibility; namely, the A, B, and Rh substances, and, likely, other cell substances that must be assumed to exist, at times, because of irregular agglutination reactions in crossmatching.[3]

In nature, the cure of these diseases is forwarded by the active generation of specific antitoxic substances by the cells of the mother, and by the expulsion of the fetus and its antenatal appendages.[5]

To complete the circle of the toxin-antitoxin mechanism between fetus and mother, if the antitoxin strength in the maternal serum becomes relatively too great, the cells of the fetus containing the specific toxic substance or substances may be injured or killed, with resulting temporary or permanent injury to the fetus or death. Such injury manifests itself in neonatal jaundice, erythroblastosis fetalis, congenital hemolytic anemia, and, likely, in many degenerative diseases, such as progressive muscular dystrophy, mental abnormality, and cardiovascular-renal inadequacy, due to the weakening and destruction of fetal cells under maternal antitoxin attack. Furthermore, there is clinical and serologic obstetrical evidence that suggests forcibly that as fetal toxic cell substances may injure the cells of the mother, likewise, at times, maternal cell substances may injure fetal cells, even to the extent of causing fetal death.[5]

It has been shown that the true toxemias of pregnancy follow a mechanism of cause and cure similar to that demonstrated by diseases due to cell substances from certain bacteria and cell substances in snake venom. In the true toxemias of pregnancy, intraspecies cell substances, that cause disease because of the parasitic relationship between the products of conception and the mother, are involved. The snake injects toxic cell substances contained in its venom by a special mechanism; the fetus may deliver its relatively toxic cell substance or substances through breaks in the placental barrier. In the latter instance, therapy is complicated by the fact that we must aim so to handle the situation that, without permanent or lethal consequences to the mother, the attachment of the fetus is preserved, at least until the parasitic fetus has reached an age permitting independent viability.

As in other diseases caused by toxic cell substances, the extent and severity of the manifestations of disease tend to vary directly with the virulence and dosage of the toxic cell substance or substances, and indirectly with the strength of the specific antitoxic substances in the mother.

The strength of the specific antitoxic substance is most easily determined by titering its so-called isoagglutinin. However, the antitoxic substance has two other arms that are equally specific and tend to parallel in strength the isoagglutinin; namely, the lytic arm and the hemotropic or opsonic arm. Though, in the past, the physiological function and the biological significance of the isohemolysins, isoagglutinins, and isohemotropins in human blood have been deemed to be unexplainable, obstetrical research in the true toxemias of pregnancy seem to make it clear that their physiological function in nature is to protect the mother against a fetus containing cell substances toxic to her cells, and biologically they have played a part in evolution and the breeding in or out of cell substances.

Our traditional concepts of the serologic components of human blood, our definitions of these components and our explanations of how these components interact, have been based largely upon demonstrable phenomena consequent upon the unnatural mixture of bloods and gross blood transfusion. In nature, the chance of the mixture of bloods obtains only in the parasitic relationship between fetus and mother, and here the

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spill from the fetus is usually in such minute amounts that the cells of the mother, if injured by a toxic substance, have time to generate a specific antitoxic substance that aids in the elimination of the toxic substance and the cells containing the toxic substance, usually before the lethal mechanical effects of gross agglutination have a chance to operate. The natural mechanism is most clearly demonstrated by the Rh negative woman who, after one or many pregnancies, may develop an Rh antitoxin. Prior or coincident with the development of this antitoxin, as would be expected, she will show signs of toxemia until the strength of her antitoxin is sufficient to protect her completely. All lines of evidence considered, it is logical to conjecture that it has been this fetus-mother relationship, since the origins of the human species evoluted to the placental type, that has brought about the present inherited composition of human bloods as regards isohemolysins, isoagglutinins, and isohemotropins in our infinitessimal segment of evolutionary time. Obstetrical serologic studies would seem to indicate clearly that incompatibility between human bloods stems from the fact that the incompatible blood contains a cell substance or substances, in its cells and serum, toxic to the cells of the individual, to whose blood it is incompatible. Its incompatibility is due to the fact that the blood with which it is mixed contains either inherited or actively acquired antitoxic substances specific to the toxic substances involved.

Thus, incompatible blood is basically toxic to the cells of the recipient due to its cell substance content, and, as we see in the Rh negative woman, Rh positive blood becomes incompatible only after the Rh negative woman develops an anti-Rh antitoxin. She develops this antitoxic substance because the Rh substance is toxic and injurious to her cells. This concept of the actual toxicity of cell substances to cells of individuals whose cells do not contain the involved cell substances in their inherited molecular cell structure is essential to the understanding of the cause of the true toxemias of pregnancy. Likewise, using the Rh negative woman as an example, it is essential to understand that the appearance of the so-called specific anti-Rh isoagglutinin is an antibody reaction in the true sense of response to injury and is a manifestation of the active generation of a specific antitoxic substance which contains lytic and opsonic properties. If this same Rh negative woman, who has developed the anti-Rh isoagglutinin, is killed by a gross transfusion of Rh positive blood, the transfused red cells containing the toxic substance will be found to be not only agglutinated, but hemolyzed by the lytic arm of the antitoxin, and phagocytosed under the effects of the hemotropic or opsonic arm of the antitoxin. It is a clear toxin-antitoxin reaction phenomenon.

There is a reasonable doubt as to the existence of the traditional entities, agglutinogens and isoagglutinins. But, if in respect for tradition and for the purpose of easy popular understanding, the terms agglutinogen and isoagglutinin are used, it would seem that it should be understood that the specific cell substance and the specific agglutinogen are one and the same entity, and that the specific isoagglutinin is only a manifestation or part of the specific antitoxic substance. Agglutination is most reasonably explainable as a phenomenon brought about when a specific antitoxic substance injures the red cells containing the involved toxic cell substance. This injury allows the cells to approach closer to one another in solution and results in their sticking together, where formerly, in health, they glided by one another freely.

From the frequency of certain findings in the late pregnancy toxemias and the common progressive sequence of their appearance, the cell substances capable of causing this disease may be classified roughly as hemotoxins. They attack the hematopoietic system of the host, causing at times various types and degrees of toxic anemias, anemias that tend to be refractory to iron and liver therapy, even when given parenterally. They attack the cells of the vascular tree, causing increasing permeability; first to water, with consequent hidden and visible edema, and bringing about abnormal increments of weight; then to the larger albumen molecule, with further increase of weight and brawniness of soft tissues, albumen in the urine, and eye ground splashes; then to red cells, with red cells in the urine and petechial hemorrhages in the eye grounds and sometimes in skin and internal organs. In some instances these petechial hemorrhages may assume ecchymotic proportions in the internal organs. Prior or coincident with these manifestations, the blood pressure tends to rise, likely due to direct stimulation of the vessel cells and furthered by intervascular pressure of permeated fluids, especially

in encapsulated organs such as the kidney. Vascular spasm is most clearly demonstrable in the eye grounds. It would seem likely that the differences in manifestations and their progress sequence observable in many toxemias arise from differences in the chemistry of the toxic substances involved and variation in the constitutional chemistry structure of the maternal cells.

The acceptance of this hypothesis of cause logically directs serologic therapy. The aims envisaged by the use of blood transfusions are: to raise the red cell and hemoglobin content and thus increase the detoxifying power resident in oxidation; to aid in replacing albumen lost in the urine and aid in restoring the normal chemistry of the blood; to relieve the tissues of the host of a part of the weight of the toxic attack by the absorptive power of the transfused blood; and, where the A or B substances are involved, to add at least a small complement of inherited specific antitoxic substance similar to that inherited by the mother.

The thought immediately arises that the ideal blood for use would be the blood of a woman whose blood is consonant with that of the mother as regards A, B, and Rh status; a woman who has just recovered from a toxemia caused by the same cell substance and whose titer of specific antitoxic substance is demonstrably high. In 1926 McMahon[6] reported ten cases in which he used the sera of recovered women. The results were considered to be remarkably excellent. He could suggest no explanation for these results, nor could any one of us who reviewed and pondered over his findings. At that time, though some of us had been investigating the Dienst theory of fetal blood incompatibility as the cause of toxemia, we interpreted our findings in accord with traditional concepts deduced from the unnatural mixture of bloods and blood transfusion and considered that it was entirely the mechanical effects of red cell agglutination and the necessities of elimination that caused the toxemia, if there were any connection between fetal blood incompatibility and the toxemias. We never harbored the idea that the cell substances involved were the basic cause. The results reported by McMahon were attributed to chance because obstetric and serologic data, at that time, did not seem to permit of a logical explanation of benefits that might be attributed to the use of such sera alone, and even when transfusion of normal blood was used to combat recalcitrant anemia or loss of blood in toxemias, we never attributed beneficial results to any factors other than those of replacement.

Our present knowledge would seem to direct that we use transfusions in the toxemias of pregnancy for serologic purposes to combat the fetal toxic cell substances as we use transfusions in erythroblastosis fetalis and allied fetal injury to combat maternal antitoxic substances. This purpose is so new to us that no amount of clinical data has yet been accumulated that can have any statistical value.

The invitation to give another report on this subject was accepted with avidity, because when attention was directed to investigating the possible practical advantages in point of therapy that might be derived from the application of the theory, it soon became apparent that statistically convincing evidence, founded upon comparisons of large series, could be obtained only if the theory and the consequent rationale of treatment were more widely understood and accepted, at least to the extent that men would be willing to give it a trial.

This investigation is being continued, in the reasoned belief, based upon the logical implications of the theory and a reanalysis and reappraisal of the meaning of outstanding clinical observations to date, that serologic therapy will prove definitely its position as an important adjuvant in the treatment of the true toxemias by bringing about a significant reduction in morbidity and mortality.

## References


1. La Vake, R. T.: Serology and obstetrics. Minnesota Med., of pregnancy. Minnesota Med., 31:372-375, (Apr.) 1948.
2. La Vake, R. T.: Serological observations in the toxemia 29:130-132, (Feb.) 1946.
3. La Vake, R. T.: Serology and obstetrics. Am. J. Obst. & Gynec., 53:459-466, (March) 1947.
4. La Vake, R. T.: Serology and obstetrics. Postgrad. Med., 1:97-105, (Feb.) 1947.
5. La Vake, R. T.: Serology and obstetrics. Wisconsin M. J., 47:690-693, 1948.
6. McMahon, J. J.: The treatment of eclampsia. Am. J. Obst. & Gynec., 12:249-253, 1926.


## Discussion

DR. G. ALBIN MATSON, Director, Minneapolis War Memorial Blood Bank: The thought occurs to me that if this theory of the incompatibility of A, B and Rh antigens in toxemia of pregnancy is correct, then one would expect to find, in those races in which those incompatibilities do not exist, a correspondingly lesser amount of toxemia of pregnancy. It so happens that among some of the Indians of this country, we do find

*(Continued on Page 73)*

# RESULTS OF THE 1948 CANCER STATISTICAL RESEARCH SERVICE
## State Department of Health

N. O. PEARCE, M.D.
Acting Director, Division of Cancer and Heart Disease Control
and
D. S. FLEMING, M.D., M.P.H.
Chief, Section of Preventable Diseases
Minneapolis, Minnesota

CANCER, the second largest cause of death in the nation and in Minnesota, became an active reporting project of the Minnesota Department of Health on January 1, 1948, when a cancer statistical study was initiated. Under a regulation of the State Board of Health, reports were requested on cancer cases discharged from all Minnesota hospitals, both general and specialized, so that data would be available for studies on the incidence and prevalence of cancer. The results obtained were to be reported periodically to the physicians of the state. For the legal protection of those participating, cancer reporting was incorporated into a Minnesota Statute in 1949, but all the 1948 material was collected under the authority of regulation.

Minnesota's cancer statistical study has been purposely limited to reporting by hospitals. Behind this choice was the idea of sampling cancer cases as the patients are discharged from hospitals, rather than attempting to collect a complete record of all cancer cases occurring in the state. To help hospitals in making reports, two trained medical record librarians have visited each hospital periodically for direct assistance to the hospital staff. This approach has been valuable in stimulating more uniform and complete record-keeping of cancer cases as well as other hospital admissions.

The 3,798 reports returned by hospitals in 1948 were used as a basis for making a series of charts revealing significant trends in cancer for Minnesota. The generalizations made from these data must be carefully qualified. For instance, only 80 per cent of the Minnesota hospitals reported during this period. Also, these data are not entirely representative, because the cancer cases which were reported did not include those patients which were treated exclusively in the doctor's office or in the out-patient department of the hospital. With these considerations in mind, the following conclusions are presented.

For men and women, cancer strikes early and late, but its prevalence increases with age. In both sexes the youngest reported cases occurred under five, and the oldest over ninety-two. The bulk of cancer cases in women occur ten years earlier than the majority of male malignancies, the female peak coming at age sixty-two, and the male at sixty-seven.

Digestive tract cancer, which includes the esophagus, stomach, liver, intestines, and rectum, leads by far in prevalence according to site, with a slight dominance of male over female. Cancer of the female genital tract and cancer of the breast are close seconds. These three regions together form more than 60 per cent of all types reported; of this 60 per cent, approximately 75 per cent represent female cases.

The picture of digestive tract cancer in males closely parallels that of females. Although the male incidence is slightly higher, both male and female peak years coincide at sixty-two.

Less than 2 per cent of breast cancer in women occurs below the age of thirty-seven. Prevalence rises precipitously to the primary peak year of fifty-two, followed by a secondary peak at age sixty-two. Male incidence of breast cancer is negligible.

More cancer occurs in the uterus than in any other single female genital organ. In making this distinction between uterine and non-uterine cancer cases, it was learned that uterine cancer tends to occur ten years later than non-uterine cancer, whose peak age is fifty-two.

Prostatic cancer occurs relatively late in the life of the Minnesota male, its range being from fifty-two to ninety-two with the peak at seventy-seven. Cancer prevalence in other male reproductive organs scatters itself over the normal age range, with occurrences distributed so uniformly as to preclude any useful generalization.

The incidence of urinary tract cancer for both sexes is relatively low up to the age of forty-two. The picture of male urinary tract cancer shows two peaks, one at sixty-two and the other at seventy-two, while the female picture shows a slow steady increase from age forty-seven to the

CANCER CASES REPORTED ACCORDING TO COUNTY OF PATIENT'S RESIDENCE

1948

| *County* | *Total Number of Reports Received* | *County* | *Total Number of Reports Received* |
|---|---|---|---|
| Aitkin | 20 | Nicollet | 20 |
| Anoka | 20 | Nobles | 21 |
| Becker | 30 | Norman | 23 |
| Beltrami | 24 | Olmsted | 2 |
| Benton | 11 | Otter Tail | 57 |
| Big Stone | 11 | Pennington | 21 |
| Blue Earth | 84 | Pine | 11 |
| Brown | 44 | Pipestone | 5 |
| Carlton | 29 | Polk | 70 |
| Carver | 10 | Pope | 8 |
| Cass | 23 | Ramsey | 17 |
| Chippewa | 26 | Red Lake | 16 |
| Clay | 12 | Redwood | 20 |
| Clearwater | 15 | Renville | 18 |
| Cook | 4 | Rice | 33 |
| Cottonwood | 10 | Rock | 4 |
| Crow Wing | 46 | Roseau | 22 |
| Dakota | 27 | St. Louis | 154 |
| Dodge | 5 | Scott | 17 |
| Douglas | 23 | Sherburne | 8 |
| Faribault | 17 | Sibley | 15 |
| Fillmore | 2 | Stearns | 89 |
| Freeborn | 24 | Steele | 10 |
| Goodhue | 54 | Stevens | 11 |
| Grant | 8 | Swift | 16 |
| Hennepin | 95 | Todd | 30 |
| Houston | — | Traverse | 6 |
| Hubbard | 8 | Wabasha | 22 |
| Isanti | 11 | Wadena | 19 |
| Itasca | 50 | Waseca | 4 |
| Jackson | 12 | Washington | 39 |
| Kanabec | 13 | Watonwan | 24 |
| Kandiyohi | 23 | Wilkin | 14 |
| Kittson | 12 | Winona | 30 |
| Koochiching | 21 | Wright | 26 |
| Lac qui Parle | 15 | Yellow Medicine | 21 |
| Lake | 14 | Fort Snelling | — |
| Lake of Woods | 4 | Minneapolis | 1044 |
| Le Sueur | 20 | St. Paul | 539 |
| Lincoln | 7 | Duluth | 177 |
| Lyon | 30 | Iowa | — |
| McLeod | 13 | North Dakota | 1 |
| Mahnomen | 3 | South Dakota | — |
| Marshall | 13 | Wisconsin | — |
| Martin | 18 | Canada | — |
| Meeker | 22 | Other States & Territories | 1 |
| Mille Lacs | 27 | Mexico | — |
| Morrison | 43 | Other Nations | — |
| Mower | 28 | Unknown | 3 |
| Murray | 15 | TOTAL | 3798 |

peak of seventy-seven, from which point it takes a sharp drop.

About two and one-half times as many males as females are afflicted with cancer of the respiratory system. Among men under thirty-seven, the prevalence of respiratory tract cancer is less than 3 per cent. For women under thirty-seven, the figure increases to 12 per cent. The peak year for males is sixty-two, while that for females is fifty-seven. The majority of respiratory tract cancer in men falls within the age range of fifty-two to seventy-two. Outside of a moderate peak at fifty-two, the pattern of female respiratory tract cancer reveals no significant characteristic.

Buccal cancer occurs most frequently in older groups of men and women. Only 3 per cent of women and 7 per cent of men have buccal cancer before the age of forty-two. Men again lead in the number of cases, reach their peak at sixty-seven and have a high incidence in later life. Women, on the other hand, reach their peak year at sixty-two and fall off gradually with advancing years.

Skin cancer predominately is a problem of the

male population. The bulk of the male skin cancer occurs between the ages of fifty-seven and eighty-two. Female incidence of skin cancer remains low and fairly steady over life age span. the ranges of these sites, and in both cases no incidence is recorded after eighty-five, about five years earlier than other recorded cancerous conditions.

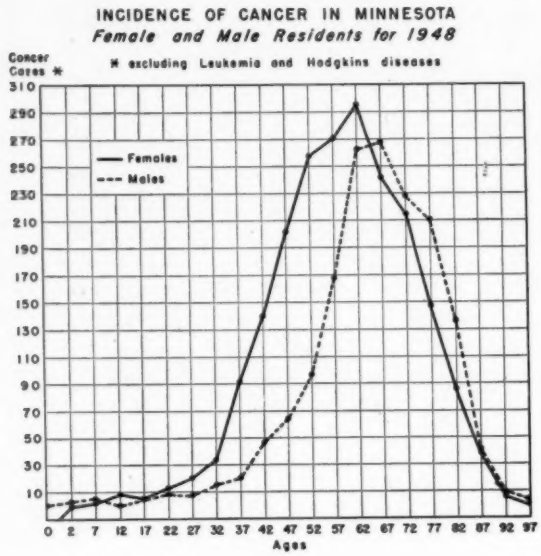



Fig. 1.

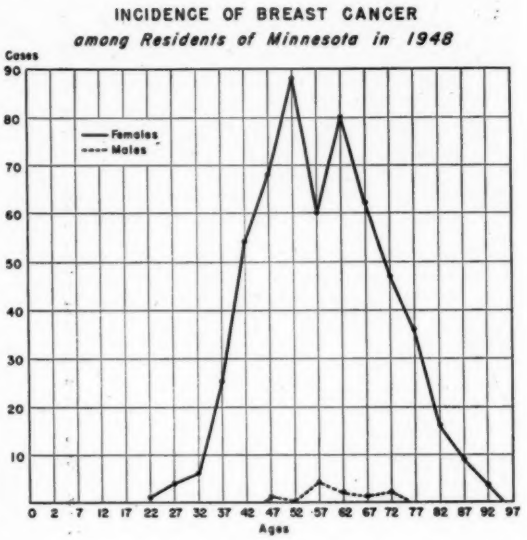



Fig. 2.

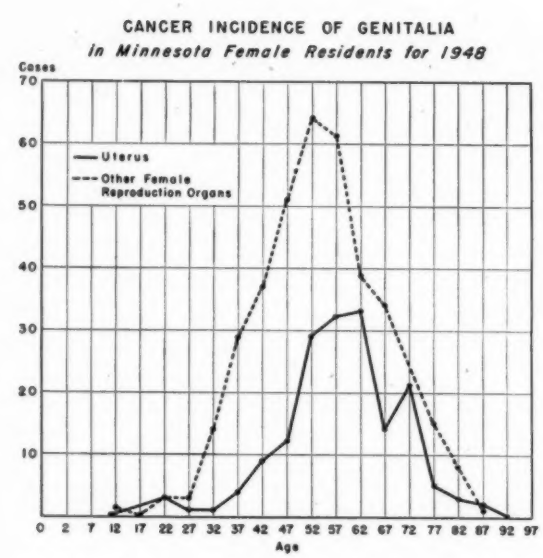



Fig. 3.

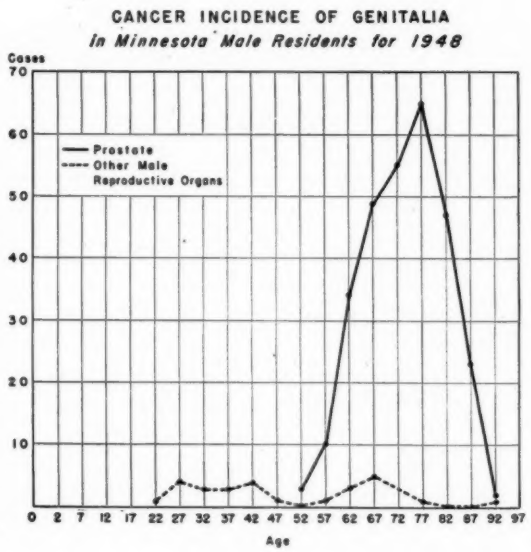



Fig. 4.

Leukemia and cancer of the central nervous system, each with six cases, account for more than half the malignancies reported under the age of ten. No significant peaks are seen in charting

Hodgkins' disease has a low incidence, with only thirty-nine cases reported. These occur mainly in the middle years of life.

The interval between onset of symptoms and

consultation with a doctor is directly related to cancer control. Although this time element in cancer is one of the most important aspects of the problem, it is one of the most difficult upon which to collect accurate and complete data. The two questions asked in the study relied upon recall and recollection by both patient and doctor; in relatively few instances were these data ever included in the original hospital record.

The belief that greater emphasis should be placed on acquainting people with symptoms of cancer has been borne out by the findings of this study. Six out of ten people with cancer wait four weeks or more before seeing their doctors. The doctors, however, are more prompt; five out of ten of their patients are hospitalized in less than a week, and six out of ten within a month. Although persons suffering from mouth and skin cancer would appear to have more noticeable symptoms, as a group they wait the longest before seeing their doctors. Cases of cancer of the central nervous system and leukemia, the two neoplasms which account for more than half of all cases under the age of ten, also are the two types of cancer which are most likely to lead people to seek early attention from their doctors after onset of symptoms. Women suffering from cancer of the reproductive organs are first to be hospitalized, while men with genital cancers delay the longest.

Minnesota's cancer statistical study is intended to be a continuous flexible program whose results can be significant when measured against long-term objectives. It provides a center for the collection of cancer data on Minnesota people which has never before been available. The study is an approximate measure by which our combined and coordinated efforts to combat cancer may be evaluated.

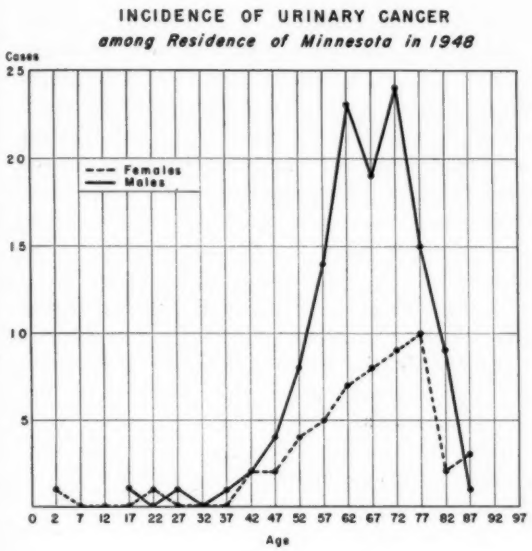



Fig. 5.

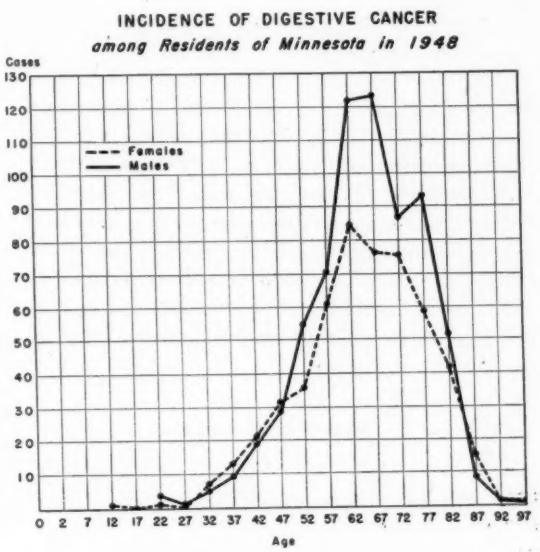



Fig. 6.

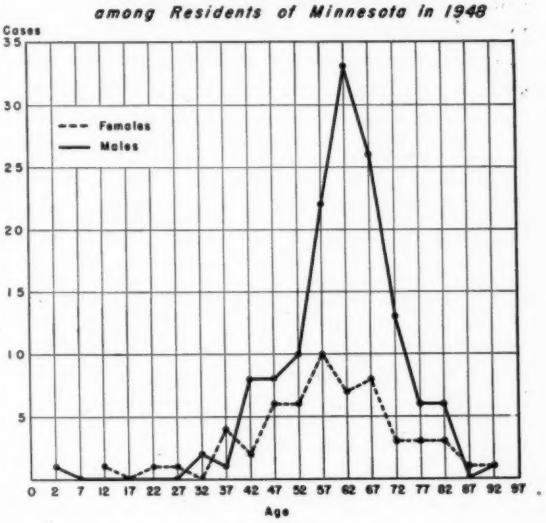



Fig. 7.

# ANALYSIS OF 10,000 APPENDECTOMIES

ELMER C. PAULSON, M.D.
Minneapolis, Minnesota

IN SPITE of the fact that there is already a voluminous literature on the subject of the vermiform appendix, its study remains a fascinating one, and the diagnosis and treatment of its pathological states constitute a continuous challenge to the family physician and the surgeon. This discussion will not deal with the treatment of appendicitis or its evaluation. Numerous excellent dissertations on this phase are available in the literature, notable among which is the recent exhaustive study by Green and Watkins[6] of 19,399 cases in Cleveland. The study at hand is concerned with the pathological evaluation of the appendectomy specimen.

## Source of Material

This analysis is based upon 10,000 surgically-removed vermiform appendices which were studied and classified in the laboratory of the Department of Pathology at the University of Minnesota Medical School. There are no autopsy specimens in the series. These specimens comprise the unselected material from the years 1942 to 1948, which was sent to Dr. E. T. Bell and his associates from numerous individual surgeons and small hospitals scattered over the states of Minnesota, North Dakota, South Dakota, Montana and Wisconsin. In general, the material arrived from hospitals and clinics too small to support a pathologist of their own, and who consequently chose to employ this particular laboratory to study their surgical material. Most of the hospitals and surgeons concerned were regular clients of the University laboratory, and they forwarded their formalized surgical specimens of all types every week or two. University Hospital material is examined in a separate laboratory and none of it is included herein.

## Method of Study

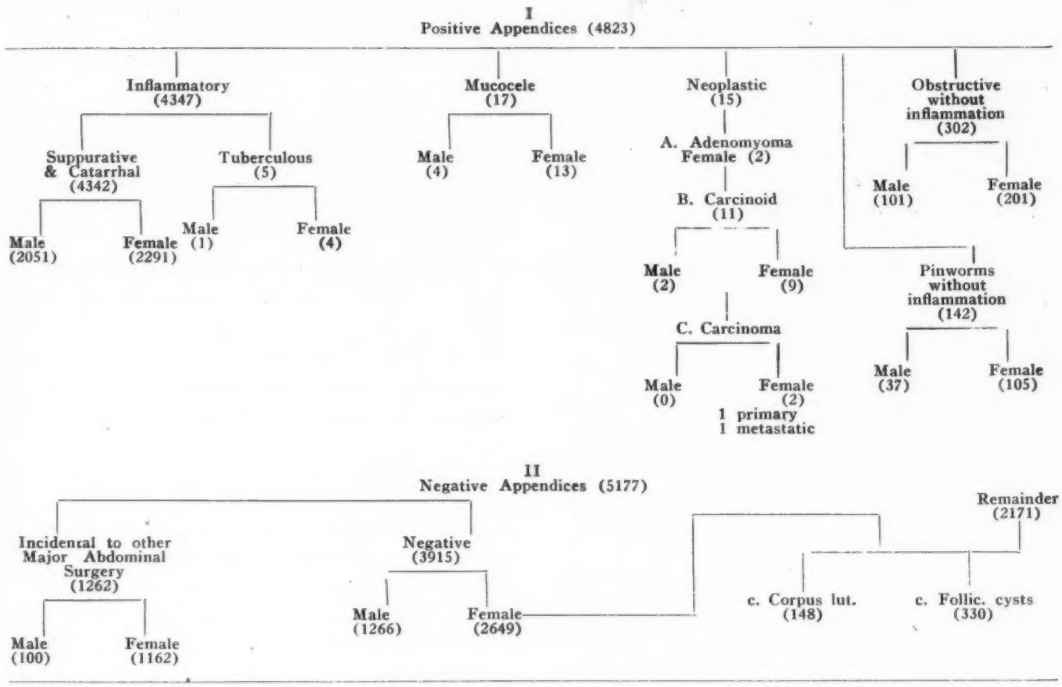
As the specimens arrive each day, they are first examined grossly and notations made concerning length, diameter, external appearance, presence or absence of fecoliths, presence or absence of perforations or gangrenous areas, and the character of the luminal contents. Thus, it is important for the sake of an accurate examination, that the appendices be submitted *in toto* and unopened. Sections for microscopic study are taken from the most likely appearing portions of each appendix. If the specimen appears grossly normal, sections are selected at random from widely scattered portions. For a period of several years, two sections were made from each normal-appearing appendix. More recently, three sections were made from each, since it was observed that sometimes one section would show the microscopic criteria of disease and the others would be normal. Even with three sections, it is occasionally found that two will be normal and the third show disease. Consequently, there is an admitted chance of error in occasionally missing the diseased portion of an appendix. The slides are stained with haematoxylineosin. The criteria of disease may be summarized as follows:

| *Criteria* | *Diagnosis* |
|---|---|
| 1. Pus cells in tunics of appendix | Suppurative appendicitis |
| 2. Lymphocytic infiltration of serosa | Recurrent or healing appendicitis |
| 3. Pus in lumen of appendix but not in the tunics | Catarrhal appendicitis |
| 4. Oxyuris vermicularis in the lumen | Pinworm infestation |

Authorities have disagreed on the significance of the obliterated appendix. It is not considered pathological in this laboratory. Aschoff was sure that fibrotic obliteration was due to previous inflammation.[3] Ribbert, Zuckerkandl and others regarded it as a natural regressive process.[3] In a series of 400 autopsies, Ribbert found partial or complete occlusion of the lumen in 25 per cent. Sir Arthur Keith declared that at the age of 70, 50 per cent of individuals will have atrophied appendices.

The significance of pinworms in the appendiceal lumen is also debated by authorities. Nathan Foot[5] states that pinworms and whipworms in the appendix may produce the typical symptoms of an acute attack of appendicitis, although the mechanism involved is obscure. It is known that pinworms leave pinpoint erosions in the mucosa which may bleed slightly. M. A. Bell[2] says that pinworms do not penetrate the wall of the appendix

TABLE I. PATHOLOGICAL ANALYSIS OF 10,000 APPENDECTOMIES




until after removal of the organ, when they may do so. Warwicke theorized that the presence of the parasites in the empty appendix may cause constractions simulating symptoms of appendicitis.

Chronic lymphoid appendicitis is described by Foot[5] as co-existing with chronic enlargement of mesenteric lymph nodes. This eventuates in fibrosis and obliteration.

"Chronic appendicitis," as a clinical concept, does not have much standing these days. No microscopic criteria of this syndrome are recognized in this laboratory.

Since fecoliths are so important in the etiology of appendicitis, being present in about 60 per cent of acute cases,[11] the policy has been employed of considering cases of fecolith without evidence of inflammation in the "positive" group.

Mucoceles and neoplasms are of considerable statistical interest and are classified logically into their own groups.

### Incidence of Various Types in the Literature

Of particular interest in close, unified groups of physicians, is the percentage of normal appendices in a series of cases. It is generally accepted that a good diagnostician should not have more than 20 per cent normals in a sizable group of appendectomies. Sappington and Horneff[13] found 60.3 per cent normal appendices in 937 cases in 1938. They quote Aschoff as finding 35 per cent normals in a series of 847 cases of primary appendectomy. In 1941, Mason, Allen et al[9] reported 18.6 per cent normals in a group of 1,000. In 1946, Joffe and Wells[7] of Duluth reported 27.4 per cent normals in a group of 1,000.

TABLE II

| | | |
|---|---|---|
| Total Number Appendectomies | 10,000 | |
| Incidental Normal Appendices | 1,262 | |
| Corrected total for basis of % normals | 8,738 | |
| Positive Appendices | 4,823 | (55.2%) |
| Corrected Normal Appendices | 3,915 | (44.8%) |

In a conglomerate group, such as I am reporting, with dozens of physicians scattered over thousands of miles contributing the material, it could hardly be expected that an ideal percentage of diagnostic accuracy would be attained. Some of these physicians are practicing medicine under difficult conditions and do not have available the diagnostic equipment or consultants of larger centers. On the other hand, certain physicians in this group have consistently excellent rates of diagnos-

tic accuracy. Table II shows the corrected normals in this group to be 44.8 per cent.

Tuberculous appendicitis is so rare that the identification of a single case warrants its publication. In 1936, W. J. Carson[4] was able to collect 125 cases from the literature. Drissen and Zollinger, in 1935, found an incidence of 0.3 per cent among 5, 149 appendices examined at the Peter Bent Brigham Hospital over a twenty-year period.

In the group reported herein, tuberculous appendicitis constituted 0.05 per cent of the entire series of 10,000, and 0.1 per cent of the pathological appendices (Table III.)

TABLE III. PERCENTAGE INCIDENCE OF RARE TYPES

| | In Entire Group | In Positive Group (4823) |
|---|---|---|
| 1. Tuberculous Appendix | 0.05% | 0.10% |
| 2. Mucocele | 0.17% | 0.35% |
| 3. Adenomyoma | 0.02% | 0.04% |
| 4. Carcinoid | 0.11% | 0.23% |
| 5. Carcinoma | 0.02% | 0.04% |
| 5a. Primary Carcinoma | 0.01% | 0.02% |

R. A. Moore[11] states that mucocele of the appendix occurs in about 2 per cent of all persons. Uihlein and McDonald[14] found twelve mucoceles in the Mayo Clinic material from years 1910 to 1941. This is in contrast with 127 carcinoids and five adenocarcinomas. These figures would indicate that mucocele of the appendix is a comparatively rare discovery for the surgeon.

In this series there were seventeen mucoceles, or 0.17 per cent of the entire group, and 0.35 per cent of the pathological portion.

I could find no references on the incidence of adenomyoma of the appendix in the literature. One would expect its occurrence to be closely related to the incidence of endometriosis, whether symptomatic or not. In the two cases herein listed, the adenomyomas were found in the serosal layer, indicating, of course, that they were peritoneal implants. The gross incidence was 0.02 per cent; and the incidence of the pathological group 0.04 per cent.

Carcinoids constitute the most common tumor of the appendix, and there is a rather extensive literature on the subject. This very interesting lesion was named by Oberndorfer in 1907[10] on the basis of its histology and apparent benignity. Some of the standard textbooks (Boyd,[3] Bell[1]) state its incidence as from 0.3 per cent to 0.5 per cent of all appendices removed surgically. McCarty and McGrath,[8] with 0.44 per cent of a series of 8,039 from the Mayo Clinic in 1914, and Selinger,[12] with 0.35 per cent of a series of about 10,000 from New York Post Graduate Hospital in 1929, support this generalization. However, Thomas Moore,[10] in 1938, found only ten cases of carcinoid among 10,229 appendectomies, at the Royal Victoria Infirmary, Newcastle on Tyne, over a ten-year period. It is interesting, in passing, to quote Young and Wyman[15] to the effect that 82 per cent of carcinoids occur in females because that was exactly the situation in my series.

TABLE IV

| | | |
|---|---|---|
| Total Female Normal Appendices..... (Corrected for incidental group) | 2,649 | |
| Negative appendix with resection of ovary for small follicular or luteal cysts or corpus luteum..... | 478 | (18.%) |
| A. Negative appendix plus corpus luteum.. | 148 | (5.5%) |

The incidence of carcinoid in this series is in remarkable agreement with T. Moore, rather than with the earlier authors, namely 0.11 per cent of the series of 10,000, and 0.23 per cent of pathological appendices.

True carcinoma of the appendix is very rare. The literature has to be examined critically when searching for reports[15] on this lesion since many writers use the term rather loosely and include carcinoids and mucoceles in the category. Nathan Foot says that of the thousands of appendices he examined at New York Hospital over a twelve-year period, not one showed true carcinoma. Thomas Moore[10] found one case of true carcinoma in 10,229 appendectomies. This coincides with the findings of the present series in which two true carcinomas were found, one primary, and one metastatic.

### Comment

It will be noted that in the group of normal appendices, after those incidental to other major abdominal operations have been excluded, the females outnumber the males two to one. In view of the proximity of the female genital tract to the appendix, and in view of the proneness of the former to yield symptoms which may be confused with appendicitis, this disproportion is probably to be expected. Reference to Tables I and IV reveals some additional information concerning the normal female appendices. In 478 (18.0%) of the 2,649 females from whom normal appendices were removed, the ovary or ovaries were resected, with the resultant pathological dis-

*(Continued on Page 53)*

# THE TREATMENT OF ACUTE CHEST INJURIES
## With Especial Reference to the Use of Tracheotomy

IVAN D. BARONOFSKY, M.D., ROY W. DICKMAN, M.D., and
EDWARD S. VANDERHOOF, M.D.
Minneapolis, Minnesota

THERE ARE few medical and surgical emergencies wherein the patient's recovery is determined by the physician's being able to recall immediately the basic physiology, anatomy and treatment of the emergency. Acute chest injury is one such example and is illustrated by the following case.

A thirty-five-year-old white man was admitted to the emergency room at Ancker Hospital following a car-train collision on April 3, 1949. He was unconscious, in shock, markedly dyspneic, and cyanotic. He had severe subcutaneous emphysema particularly of the neck and face. There were fractures of the first and second ribs on the left and of the first on the right. He also had a comminuted fracture of the distal third of the left ulna and radius and a fractured left clavicle. His pulse became very weak and rapid. Because of his respirations, pulse, and the rapid increase in emphysema in the suprasternal notch, and from physical examination, a diagnosis of severe mediastinal emphysema and left pneumothorax was made.

A 15-gauge needle was inserted adjacent to the sternum into the left fourth interspace and directed medially into the mediastinum. About 15 c.c. of air was withdrawn with immediate respiratory relief to the patient. Immediately following removal of the needle, the patient again developed symptoms and again was relieved by aspiration. A 15-gauge needle connected to a stop cock and 50 c.c. syringe then was inserted into the left third interspace anterior-laterally and 1500 c.c. of air was removed from the pleural cavity. This was done on several occasions with marked improvement in the patient's respirations and color. It was evident that the patient had a bronchopleural fistula because of the rapid accumulation of air into the pleural cavity, so a left thoracostomy was done with the introduction of a No. 15 urethral catheter through a trocar in the region where the needle was inserted. The catheter was attached to a Stedman pump and constant suction maintained. It soon became evident that the patient's bronchopulmonary tree was filling with secretion typical of the "wet lung" syndrome. Because catheter suction of the trachea through the larynx was unsatisfactory due to the patient's unconsciousness, and since numerous autopsies here have shown that many of these patients die from pulmonary complications arising from overaccumulation of bronchial secretions, a tracheotomy was performed. A profuse amount of intratracheal and intrabronchial secretions was aspirated with again marked improvement in the patient's respiration. Five hundred c.c. of blood had been started upon admission and supplemented with 1000 c.c. of 10% glucose in distilled water. Almost constant suction was maintained the next 24 hours to keep his respiratory tree cleared.

The next day, examination revealed a right pneumothorax, and a right thoracostomy with a catheter and a trocar was done after several needle aspirations of air. His temperature rose to 104.2° but gradually subsided during the next thirteen days. He alternated between coma and disorientation for thirteen days, during which time constant tracheal suction and penicillin therapy were maintained. On the fifth day, physical examination and radiographs revealed expansion of the lungs, and after clamping the thoracostomy tubes for twenty-four hours without recurrence of symptoms of pneumothorax, the tubes were removed. He had received a total of four pints of blood about 2000 c.c. of intravenous fluid per day. On the seventeenth day, the tracheotomy tube was plugged with a cork since trachea suction was no longer necessary and the tube was removed in twenty-four hours. An open reduction of the ulna and radius was performed the twenty-fifth day and on April 29, 1949, the patient was discharged from the hospital and has been well since.

*Comment.*—This case represents several interesting procedures which were instituted as life-saving measures. The mediastinal aspiration and left thoracostomy are prime examples. Had a tracheotomy not been done, it is probable that pulmonary complication would have been such that the patient would have succumbed within the next two days because it would have been necessary to bronchoscope him every three to four hours to offer him respiratory relief from profuse bronchial secretions. Patients in a state of coma are unable to bring up these secretions and subsequently may die of bronchopneumonia. This fact plus the presence of severe chest injury which in itself is an important cause of "wet lungs" (edema), suggests that tracheotomy should be thought about early in cases of the type presented. His entire course was based upon a fundamental knowledge of the physiology and anatomy of the chest and training in the treatment of thoracic injuries.

### Physiology

The physiology of the thoracic structures is only too poorly understood by many untrained

From the Department of Surgery, University of Minnesota, and Ancker Hospital.
Dr. Vanderhoof is now at Veterans Hospital, Sioux Falls, South Dakota.

in the chest specialties. The thorax is a semirigid cage, within which lie the lungs and mediastinum which respond to simple physical laws. When the muscles of respiration act during the inspiratory phase, the thoracic cage is enlarged, creating a negative pressure approximately —6 mm. Hg within the thorax. Air enters the lungs via the larynx and trachea much as it would into a bellows. The lung parenchyma is stretched as air enters the alveoli; and when the muscles of respiration cease to act, the expiratory phase, a purely passive action, takes place due to the contractility of the muscle and lung tissue. At the end of expiration the pressure within the thorax is about —2.5 mm. Hg. When a person is dyspneic, accessory muscles of respiration come into play, and the expiratory phase then becomes an active phase. Pressures in the chest may change over tenfold. It is readily understood that the above cycle is dependent upon both a firm and a sealed thoracic cage. Should a chest wall become flail through injury, the wall will respond to the intrathoracic negative pressure and transmit its negative pressure to the mediastinum if it is not fixed from disease, so that no increase of intrathoracic pressure is transmitted to the lungs and the act of inspiration does not occur. This also takes place in large sucking wounds of the thorax where the air enters and leaves the thoracic cage through the wound in response to the forces of respiration instead of through the larynx and trachea.

The mediastinum contains the heart, great vessels, nerves, lymph nodes, thymus and part of the thyroid. There is no cage protecting these structures so they are also acted upon and influenced by intrathoracic pressure. When the intrathoracic pressure becomes more negative during inspiration, the great veins and atria tend to fill with blood because the intravenous pressure in these organs is much less than in other parts of the venous circulation. Expiration, especially if forced, tends to force blood out of these organs. These veins, including those of the neck, are valveless and any sudden imbalance of pressure within the thorax may adversely affect the cardiorespiratory function of the body. Traumatic asphyxia due to a sudden crushing injury with a compression of the thorax is a typical example. The enormous increase of intrathoracic pressure collapses the great veins and atria and forces blood into the valveless veins of the head and neck causing a cyanotic discoloration of a "violet hue" and petechiae of the head, neck and shoulders. There may be subconjunctival hemorrhage with protrusion of eyes and swelling of the lids and tongue. Blindness may result. Cerebral symptoms such as coma, rigidity, and convulsions may be present and are due to the anoxia rather than to cerebral petechiae. This type is known as ecchymotic traumatic asphyxia. The pale type may also have areas of purplish discoloration but there is a typical pallor of the face and neck and the patient has a cold, clammy skin; weak, rapid, thready pulse; and an uneven, shallow respiration.

Another important physiological problem is intrabronchial secretions which may complicate an acute chest injury. Normally, the bronchial secretions are relatively fluid, becoming more so as they approach the main bronchi. The bronchial tree is kept clear by the beating of the bronchial cilia which sweep toward the trachea and larynx and also by the cough mechanism in which intrabronchial pressure is built up by sudden expiration from the force of the expiratory muscles of respiration and the bronchial musculature, resulting in marked increase of pressure of the intrabronchial air against a closed larynx. When the larynx suddenly opens, the intrabronchial pressure is suddenly released carrying with it particles of intrabronchial and tracheal secretion. When these secretions become overabundant due to stimulation of the secreting cells and more mucoid and tenacious, it becomes more difficult to expel the sputum. If pain is present in the chest, the patient normally inhibits his cough reflex. There is evidence accumulating to show that following severe chest injuries, the secretions of the tracheal bronchial tree are altered and become more profuse yet more mucoid and sticky.[4,15] Burford and Burbank believe that intrathoracic organs, especially the lung, react to localized contusion of the chest wall very much as tissues in any part of the body may react to localized blows, that is, with edema formation. This, in the lung, may result in atelectasis, hypoxemia, and pneumonitis. de-Takats[16] demonstrated experimentally that the bronchial tree goes into spasm following chest wall injuries, pulmonary emboli, or vagal stimulation and secretes thick, sticky mucus. This material is very difficult to raise, especially if coughing causes chest pain, and the cycle terminates in a clinical entity described as "wet lung." He proved that atropine or papaverine in high dosages partially and at times entirely blocked this mechan-

ism. It would seem logical therefore to use these drugs to prevent the condition from arising. If the secretions have already formed, they must be aspirated by a catheter or bronchoscope since atropine will only further prevent their being diluted by normal secretion. On occasions, such as in this case report, tracheotomy must be resorted to because, if untreated, the wet lung syndrome will result in death.

With an understanding of these few fundamentals, a rational attack to the problem of an acute chest injury can be launched. The first and primary job is to correct the severe cardiorespiratory difficulty. From just a glance, a few words about the type of injury sustained, percussion and auscultation, a diagnosis of the injuries present can usually be made. If the patient presents evidence of traumatic asphyxia and dyspnea due to increased intrathoracic pressure, it is usually either severe tension pneumothorax or a hemothorax, the differentiation of which is easily made by percussion and auscultation. These procedures also give information as to whether a "wet lung" is developing. If he is breathing rapidly but is still pale and somewhat cyanotic, a quick examination reveals whether a flail chest or a crushing chest wound is present. If mediastinal emphysema is present, there will be also severe subcutaneous emphysema about the neck and face; the diagnosis is easily made by palpation. The treatment of each of these problems is well known.

### Tension Pneumothorax

Tension pneumothorax may develop without rib fracture or penetration of missiles. The patient presents a picture of acute dyspnea and cyanosis and has total or partial collapse of the involved lung. He may present either the picture of the pale or ecchymotic type of traumatic anoxia. Percussion reveals marked tympany on the side of the pneumothorax and usually a shift of the mediastinum. Auscultation reveals little or no breath sounds in the involved side. Diagnosis can positively be made by x-ray, but on occasion there is no time to wait for films. An 18-gauge needle inserted into the chest wall at the level of third or fourth rib anterior-laterally will result in a loud hissing noise as the air under pressure escapes. This will relieve the patient while a syringe is readied with either a rubber adapter that can be fitted over the needle and attached to the syringe or a two-way stopcock. If the air ceases to leave the needle and is being sucked in before the syringe is ready, the adapter end of the needle must be covered tightly to prevent air being sucked into the thoracic cavity. With the syringe, air is removed until the pleura can be felt rubbing against the end of the needle or the patient complains of a severe tight sensation in the chest, a cough, or has a poor pulse.

The next day more air can be aspirated and the lung expanded. If the pleura is left with too negative a pressure as evidenced by the severe tight feeling the patient experiences, pleural effusion will develop. If air rapidly accumulates after aspiration, there is a tear into the lung parenchyma or bronchus creating a bronchopleural fistula. The air should be reaspirated; and if the accumulation continues, a soft rubber catheter should be inserted through a trocar into the thoracic cavity at about the level of the fourth or fifth rib in the anterior axillary line and connected to either a Stedman pump or water trap bottle until the lung is expanded.

Tension pneumothorax must be differentiated from progressive bullous emphysema since aspiration of these bulli usually results in death.[1]

### Hemothorax

The patient usually complains of pain in the involved side of the chest and may be dyspneic and cyanotic. If the hemothorax is massive, he may also present the picture of traumatic anoxia. On other occasions, it is only diagnosed by routine chest films taken for rib detail and the localization of the fractured ribs. It is well proven that immediate aspiration of the hemothorax and instillation of at least 500,000 U. of penicillin without air replacement is now the treatment of choice[4,5,8,13] as compared to the previous custom of either leaving the blood in the thoracic cavity or replacing the blood with air. If there is continuous bleeding, neither leaving the blood in the chest nor replacing it with air will stop the bleeding and a thoracotomy will be necessary.[6] When introduced into a hemothorax, air rises only to the apex of the chest, which prevents the expansion of the upper lobe which is the most difficult part of the lung to expand if a "thickened pleura" develops.[5]

Also, the popular belief that blood lying free in the pleural cavity will not clot is fallacious. If there is a crushing type trauma of the pleura or lung, clotting readily takes place.[2] Following clot-

ting multiple loculations develop necessitating thoracotomy with decortication of the thickened "peel" over the pleura of the lung. Actually, the "peel" is not a thickened pleura but rather an organized exudate overlying and adhering to a normal pleura.

### Mediastinal Emphysema

It is rare that mediastinal emphysema becomes so severe that treatment must be instituted. However, the reported case demonstrates that this may happen. The patient may present symptoms of dysphagia, cyanosis, extrapericardial tamponade with circulatory failure and death. There may be electrocardiographic changes and a "popping" sound heard during systole. Aspiration as described by Gumbiner and Cutler should be carried out. A needle is inserted in the third or fourth left interspace 1 cm. to the left of the sternal border and directed medially parallel to the surface of the sternum, and aspiration performed. Incisions in the suprasternal notch should be avoided if possible.

### Flail Chest

The patient usually has acute respiratory embarrassment and chest pain with gross evidence of the flail chest and paradoxical respiration. There are fractures of the involved ribs in two places. The chest wall must be fixed by some method, one of which is the use of towel clips around several of the involved ribs midway between the fractured sites. The clips must be held under tension by traction.[3] The chest wall may be supported in the other direction by adhesive tape. Tape alone is of no benefit. Since the patient will have pain with coughing in any type of rib fractures, the best method of treatment is injection of the intercostal nerves with novocaine proximal to the sites of fracture. Depressed fractures of the sternum also result in a flail chest. The sternum must be supported by traction instituted either with towel clips, a wire inserted under the sternum, or malar traction clamps. Care must be taken not to pierce or tear the internal mammary arteries.[10]

### Sucking Wounds

The patient presents the same symptoms as in a flail chest. The sucking wound must be immediately sealed with an occlusive dressing and the pleural cavities aspirated of air and blood to restore the patient's cardiorespiratory balance. Under sterile technique the wound must be debrided, bleeding vessels ligated, and the wound closed primarily. Pneumothorax and hemothorax must be handled as previously described. Penicillin should be introduced into the pleural cavity.

### Wet Lung

The interesting clinical entity, wet lung, if untreated, often leads to atelectasis, pneumonia, bronchiectasis, or death. As previously described it seems to result from chest wall trauma and pain. If intercostal nerve blocks are done and the patient is relieved of pain and can cough sufficiently to clear the respiratory passages, the passages remain clear until the pain reappears. Atropine used after clearing the passages blocks the re-formation of the mucus.[7] The technique of intercostal block is very simple. The injections are made preferably at the angles of the ribs. A 20-gauge needle is directed perpendicularly until the rib is encountered and then directed under the rib for the distance of 0.5 cm. Five to 10 c.c. of 1 or 2 per cent novocaine are injected into this area. All the involved ribs are injected including the uninvolved rib above and below. Paravertebral blocks also may be used, the technique of which is only slightly more difficult.[9] The patient should have moderate sedation for restlessness. Morphine sulfate can be used since the slow respirations are more efficient than the rapid type.[12] Carbon dioxide 100 per cent for two to three breaths followed by coughing is helpful. If no improvement occurs after injecting the intercostals and using $CO_2$, place the patient in a semi-Fowler's position and pass a No. 16 or No. 18 urethral catheter with suction attached through nose into pharynx. During an inspiration advance the catheter rather rapidly, and it will usually pass into the larynx.[15]

The patient will experience a severe coughing spell in spite of pain and will raise an appreciable amount of the tenacious sputum. Also, if possible, leave the catheter in place until the passageways are clear. If clearing the passageway fails by this method, then bronchoscopy must be resorted to.

It is to be emphasized that the bronchial passages are to be kept clear at all costs. Patients with chest injuries frequently die of bacterial pneumonitis after the basic disturbances in the chest physiology have been readjusted. Catheter suction is excellent if an experienced person is present constantly at the bedside, because the secretions accumulate rapidly. If there is any doubt that catheter suction or bronchoscopy will

not suffice, tracheotomy should be instituted early. With a tracheotomy present, suction of the trachea and bronchi can be carried out simply, quickly, and accurately. In those cases where loss of sensorium is present in addition to severe chest injury, it is our belief that tracheotomy should be instituted immediately. In fact, tracheotomy probably should be employed in all patients with coma who have a reasonable chance of getting well.

## Summary and Conclusions

1. A case is presented in which bilateral pneumothorax, mediastinal emphysema, rib fractures and coma were present on admission. Treatment of these conditions is discussed.

2. There is a short discussion of the physiology of the chest, and treatment of the more common types of acute chest injury is given.

3. It is suggested that tracheotomy in cases of severe chest injury should be considered very early in order that the bronchial secretions may be removed adequately.

## References


1. Albertson, H. A., and Peterson, C. H.: A case of progressive bullous emphysema complicated by chest trauma. Virginia M. Monthly, 74:522-524, 1947.
2. Alexander, J.: Thoracic injuries. Am. J. Surgery, 67:216-225, 1945.
3. Barrett, W. A.: Bilateral crush injuries to the thorax: with death. Mil. Surgeon, 97:394-396, 1945.
4. Blades, B.: Emergencies of injuries of the chest. J.A.M.A., 135:813-814, 1947.
5. Blades, B.: Recent observations concerning the treatment of chest wounds. S. Clin. North America, 24:1410-1423, 1944.
6. Burbank, B., Falor, W. H., Jones, H. W.: Three hundred seventy-four acute war wounds of the thorax. Surgery, 21: 730-738, 1947.
7. Burford, T. H., Burbank, B.: Traumatic wet lung. J. Thoracic Surg., 14:415-424, 1945.
8. Churchill, E. D.: Trends and practices in thoracic surgery in the Mediterranean theater. J. Thoracic Surg., 13:307-315, 1944.
9. Fitzpatric, L. J., Adams, A. J.: Nerve block in the treatment of thoracic injuries. J. Thoracic Surg., 14:480-483, 1945.
10. Gardner, C. C., Jr.: Chest injuries. S. Clin. North America, 26:1082-1094, (Oct.) 1946.
11. Gumbiner, Bernard and Cutler, Meyer M.: Spontaneous pneumomediastinum in the newborn. J.A.M.A., 117:2050, 1941.
12. Kinsella, T. J.: Thoracic injuries. Minnesota Med., 26: 524-528, 1943.
13. Miscall, L., Harrison, A. W.: Thoracic surgery in a hospital center. Ann. Surg., 125:142-156, 311-333, 1947.
14. Rogers, W. L., Holman, E.: Penetrating wound of the chest in the Pacific area. Ann. Surg., 124:1076-1081, 1947.
15. Samson, P. C., Brewer, L. A. III: Principles of improving inadequate tracheobronchial drainage following trauma to the chest. J. Thorac. Surg., 15:162-172, 1946.
16. deTakats, G., Fenn, G. K., Jenkinson, E. L.: Reflex pulmonary atelectasis. J.A.M.A., 120:686-690, 1942.


# ANALYSIS OF 10,000 APPENDECTOMIES

*(Continued from Page 48)*

closure of small follicular or luteal cysts or normal corpora lutea. These figures refer only to tiny cysts, not to large ovarian cysts of various types. Evidently, the surgeon, after his disappointment in encountering a normal appendix, went on to examine the pelvic organs. Upon finding a slightly enlarged or reddish or yellowish ovary, he resected it with the hopes that it would cure the patients' symptoms. Probably this is a naïve explanation. At any rate, the pathological study of these specimens forces the conclusion that the additional procedures were not warranted. Particularly unjustified is the removal of a normal corpus luteum (which occurred in 5.5 per cent of the negative female group.) Identification of the corpus luteum for what it is *in situ* at the time of surgery would enable the operator to diagnose probable *Mittelschmerz* and warn the patient of possible similar attacks in the future.

## Summary

This study comprises 10,000 consecutive surgically-removed appendices, which were examined over a seven-year period in the laboratory of Dr. E. T. Bell and his associates at the University of Minnesota. The series is analyzed by means of several tables. The incidence of the rare types is described and compared with that found in the literature. After deducting the normal appendectomies incidental to other abdominal operations, the corrected percentage of normals is 44.8 per cent. The practice of resecting an unpathological ovary in the presence of a normal appendix is described and commented upon.

## Bibliography


1. Bell, E. T.: Textbook of Pathology. Philadelphia: Lee and Febiger, 1944.
2. Bell, M. A.: Oxyuris vermicularis and appendicitis. Arch. Pediat., 53:649-653, (Oct.) 1936.
3. Boyd, William: Surgical Pathology. Philadelphia: W. B. Saunders Co., 1947.
4. Carson, W. J.: Tuberculosis of appendix. Am. J. Surg., 34:379-382, 1936.
5. Foot, Mathan C.: Pathology in Surgery. Philadelphia: Lippincott, 1945.
6. Green, H. W. and Watkins, R. M.: Appendicitis in Cleveland. Surg. Gynec. & Obst., 83:613-624, (Nov.) 1946.
7. Joffe, H. H. and Wells, A. H.: Normal appendices in 1,000 appendectomies. Minnesota Med., 29:1019-1021, 1946.
8. MacCarty, W. C. and McGrath, B. F.: Frequency of carcinoma of the appendix. Ann. Surg., 59:675, 1914.
9. Mason, M. L., Allen, H. S., Queen, F. B., Gibbs, E. W.: Quart. Bull. Northwestern Univ. M. School, 15:1-20, 1941.
10. Moore, Thomas: Carcinoid tumors of appendix. Brit. J. Surg., 26:303, 1938.
11. Moore, R. A.: Textbook of Pathology. Philadelphia: W. B. Saunders Co., 1944.
12. Selinger, Jerome: Primary carcinoma of vermiform appendix. Ann. Surg., 89:276, 1929.
13. Sappington and Horneff: Am. J. Surg., 39:23-26, (Jan.) 1938.
14. Uihlein, A. and McDonald, J. R.: Primary carcinoma of appendix resembling carcinoma of colon. Surg. Gynec. & Obst., 76:711-714, 1943.
15. Young, E. L. and Wyman, S.: Primary carcinoma of the appendix associated with acute appendicitis. New England J. Med., 227:703-705, 1942.


*4336 Elliot Avenue.*

# HEMOCHROMATOSIS

C. N. HARRIS, M.D. and R. E. HANSEN, M.D.
Hibbing, Minnesota

HEMOCHROMATOSIS is a comparatively rare disease, thought to be of metabolic origin and usually characterized by the triad: (1) marked deposition of iron-containing pigments in many of the body organs; (2) cirrhosis of the liver; (3) diabetes mellitus.

The disease was perhaps first described in 1871 by Trosier, who recognized a bronze cachexia in cases of diabetes mellitus. Von Recklinghausen, in 1889, named the disease hemochromatosis and thought it was due to primary blood destruction which resulted in deposits of pigment through the body.

The paucity of this disease becomes very apparent when one realizes that less than 600 cases have been reported. In a large Toronto hospital, only nine cases in thirteen years were observed.[1] Bellevue Hospital, New York, reports four cases in 5000 autopsies; Johns Hopkins, three cases in 100,000 admissions. Another study of 5000 diabetics revealed only two cases.

The disease enjoys a world-wide distribution and is seen chiefly between the ages of forty-five and fifty-five years. Men are especially affected, perhaps 90 per cent of the cases being of this sex.

The etiology of the disease is uncertain and various theories have been advanced. Some believe that the disease is due to a toxin either bacteriological or chemical (zinc-lead-copper) whereby there is destruction of red blood cells with liberation of iron from hemoglobin. The nutritional basis has been offered as an explanation because in Africa the disease is a common sequela of pellagra which in turn is a dietary deficiency state. Butt and Wilder suggest that perhaps a hypovitaminosis A during fetal life renders the intestinal mucosa defective and thereby permits the entrance of amounts of iron or affects the general body metabolism so that iron in individual cells is defectively metabolized. Some writers believe there is an association between aplastic anemia, treated by repeated transfusions and hemochromatosis, the iron from the destruction of blood being deposited in a cirrhotic liver and also in the pancreas. Perhaps the most adequate explanation of the disease in the light of our present knowledge is that the disorder is an inborn error of metabolism, probably congenital, which allows the entrance of small amounts of iron into the cell, but does not permit its excretion. The symptoms of the disease are due to the secondary resultant effects, cellular destruction and fibrosis in the various organs.

The pathology of the disease[2] is concerned primarily with pigment alteration, which secondarily produces destruction and fibrosis of the various body structures. Melanin, a normal skin pigment, is markedly increased and does not enter into the destructive process as does hemosiderin and hemofuscin. Hemosiderin is a protein-iron compound with a deep yellow to brownish-yellow color and is found in all tissue, except perhaps nerve and smooth muscle. Hemofuscin varies from a light yellow to dark brown and doesn't react to chemical tests for iron. It occurs, as contrasted to hemosiderin, in smooth muscle. The total amount of iron deposited in the body at the time of death varies from 25 grams to 50 grams in comparison with the average normal of 3 grams.

The changes in the liver are usually striking. This organ is greatly enlarged, the majority of cases presenting livers weighing over 2000 grams. However, it has been observed that in about 10 per cent, the liver is smaller than normal. Grossly, the liver has a reddish tint and is finely granular. Microscopically there are deposits of hemosiderin in the liver cells and in the fibrous tissue with evidence of degeneration, producing a cirrhosis.

The pancreas is fibrotic and presents a reddish tint similar to that of the liver. The islands of Langerhans are reduced in number and exhibit fibrosis in about 80 per cent of the cases. The spleen varies in size, but is usually increased. There are deposits of hemosiderin and hemofuscin present but not as marked as in the liver. The gastrointestinal tract is affected by the pigment, but otherwise shows no definite changes. The heart is usually deeply pigmented with hemosiderin, but definite fibrotic changes are not often observed. The thyroids and parathyroids show marked pigment involvement with added degenerative and fibrotic alterations. The adrenal cortex contains much pigment. The anterior lobe of the pituitary

From the Adams Clinic, Hibbing, Minnesota.

practically always contains deposits. The testes often show atrophic changes in the sperminal epithelium. In the skin there is an increase in the melanin which occurs in the deeper epidermis, whereas the corium harbors hemosiderin, mainly in the cells of the sweat glands. Hemofuscin is confined to the walls of the blood vessels.

The clinical features of the disease are primarily three in number; however, a single case may present any one, two, or three features or a combination of them. The initial symptom in each case may certainly vary. Sheldon states that pigmentation occurred first in 26 per cent of his cases.[8] Butt and Wilder noted its onset as an initial sign in 40 per cent of their series.[3] Diabetes as the first sign was noted by Sheldon in 25 per cent and other authors have found this also. Cirrhosis has been noted as the anlage in about 25 per cent of the cases. Chesner[5] reported a case with some interesting features; the disease occurred in a fourteen-year-old, which is unusual, and the patient did not have the skin pigmentation or diabetes; however, the liver and spleen were palpable. A severe hypochromocytic anemia of the iron deficiency type preceded the disease symptoms by six years. Diagnosis was made at autopsy, based on the finding of pigment cirrhosis of the liver and pancreas.

The skin pigmentation is seen in about 80 per cent of the cases and it appears in varying degrees from a diffuse bronzing to a slate-like metallic tint. The face, nipples, scars and extensor areas of the arms show the greatest color; however, the entire body may be pigmented. The intensity of the pigment may vary. Certainly as the disease progresses, the color will perhaps do likewise. With the use of insulin, the pigmentation may change in intensity. Humphrey[7] reported a case in which the pigmentation varied from light to dark. This he postulated might be due to the varying volume of water and glycogen storage in the superficial skin cells while the patient was under insulin treatment.

The diabetes once established has a tendency to become more severe and uncontrollable. Perhaps the patient becomes insulin resistant, but most likely the progressive degeneration of the pancreas is responsible. The glycemia is extremely labile, patients approaching coma on one day and victims of hypoglycemia the next. This cardinal variability might be due to the cumulative physiological action of the involved liver, adrenal, pituitary, and thyroid glands. Sheldon showed diabetes to be present in 70 per cent of his cases. Wilder observed it in 86 per cent of his cases.

The enlargement of the liver has been considered the most common entity, being present in more than 90 per cent of the cases according to Sheldon. Clinically, the liver is smooth and not tender on palpation, and occasionally one finds one lobe more involved than the other. Ascites has been observed in about 20 per cent of the cases. The spleen is enlarged, according to Sheldon, in 60 per cent of the cases.

Some of the less protean manifestations of the disease are interesting and bear mention. The influence of the disease on the sexual characteristics has been reported, and the changes in the male are noteworthy. Loss of hair, impotence, and atrophy of the testicles are characteristic. The basis of such changes might be explained by the inactivation of estrogens by the liver or by the infiltration of the anterior pituitary with hemosiderin.[4] Marked asthenia may be present and could be explained by the involvement of the adrenal glands. The neurological signs such as unsteady gait and loss of tendon reflexes are infrequently encountered.

The diagnosis is established by the integration of the symptoms and the following laboratory aids: intradermal test of Fishback,[6] skin biopsy, demonstration of hemosiderin in the urine and ascites fluid, and liver biopsy.

### Case Report

J. N., aged forty-eight, was seen on February 18, 1948, about 4:30 P.M. with the following history. On February 17, he got up to go to work, but did not feel too well. He was slightly nauseated. He had very little breakfast and took his usual dose of protamin zinc insulin, 80 units, and went to his office. About 11 A.M. he came home and went right to bed. He refused food. He slept all day but was muttering in his sleep. His wife states that he would rouse to questions, but would go right back to sleep. At 4 P.M. she coaxed him to take a bowl of soup. He refused food during the night and the following morning had very little breakfast, but did not take insulin. When seen at home, he was drowsy, restless, irrational, complained of nausea and vomiting, and had a loose watery stool. His fever at home was 103.5°. He would answer questions rationally and intelligently, but if left alone for one or two minutes would doze off and begin muttering incoherently. He denied a cold. He was hospitalized at once.

Past history revealed jaundice in youth. First symptoms of any serious trouble appeared in 1934. Previous to that time, he had averaged 220 pounds in weight and had been very rugged. He played football, and was

very active in sports while in school. In 1934, he lost 66 pounds in two months. At that time, he states that he was very tired and mentally confused. Diabetes and an enlarged liver were discovered at that time. He maintained a weight of 154 pounds for eight years on a diet and 40 units of insulin daily. He then became careless and again lost weight down to 145 pounds. At that time, in 1942, he came under the care of one of us (C. N. H.). When questioned about his color, he stated that he thought the change had begun to appear about 1934 and had steadily become more pronounced. The size of the liver apparently had not changed since 1934. At that time, 1942, he complained of pain in the lower one-third of the right thigh, which was present for six weeks. Previous to the onset of pain in the thigh, he had sacroiliac pain for one month. When the pain left the back, it migrated to the thigh. Diet and increase of insulin to 60 units corrected the pain and increased the feeling of well-being. Between 1942 and 1946, the blood sugar ranged from 133 to 322. In February, 1946, he developed a carbuncle on the neck. It then became necessary to increase his insulin to 80 units. In April, 1946, he developed a boil on the scalp. From then on to 1948, he took 80 units of protamin zinc insulin daily. He was next seen February 18, 1948, for his present illness.

His habits had been good since 1934, except for occasional carelessness about his diet. He had never been a heavy drinker. His father and mother were living and well. He was married and his wife and one child were living and well.

By occupation he sold oil, gas and accessories.

Examination revealed a well-nourished, adult man, forty-eight years of age. The hair was sparse on the scalp and body. The skin was a bluish color, but on the exposed surfaces of the body—face, neck, and hands—was almost bronze. There were a few spider nevi over the upper chest. The ears were normal. There was no cervical adenitis. The teeth showed no caries but there were quite a few missing as a result of extractions. The throat was moderately injected. The uvula was edematous. The heart was slightly enlarged to the left and downward. There was a faint mitral murmur, systolic in time, not transmitted, which had never been heard previously. The blood pressure was 120/65. The lungs presented no areas of consolidation; the respiratory excursions were full and free. There were a few scattered râles at both bases. There was rather more than moderate distention of the abdomen. The liver was enlarged and was palpated about 4 or 5 inches below the costal margin anteriorly, and about 2 inches laterally. The liver dullness also extended upward beyond the average margin. The edge was rounded and firm, but not tender. The spleen was palpable, but not tender. There was no tenderness or muscle-spasm present. There was no hernia. The genitalia were normal except that the testes appeared small. Chest x-ray by a portable machine revealed no consolidation.

The laboratory reports were as follows: hemoglobin 99 per cent, gms. 14.3, WBC 12,200; N. seg. 21, Seg. 65, Lymph 12, Mono 2. Blood sugar 266 mg. per cent.

Temperature on admission was 103°. The temperature ranged from 100.4 to 109 degrees on the last day of illness. Pulse on admission was 110; pulse elevation and respiration corresponded fairly well with the temperature range. Sedimentation rate 23 in a half hour and 27.3 in one hour. Spinal fluid clear, colorless; protein 44, Chlorides 698, Sugar 141. Urine 3 plus sugar, albumin trace, acid 5.5. No diacetic acid or acetone.

On February 19, râles at the base were slightly increased. They were fine and crepitant. The patient was very disoriented. There was still moderate distention of the abdomen, the legs and arms were sore. There were petechial spots on the left arm and shoulder. There was redness and tenderness of the left wrist and palmar surface. There was tenderness of the left knee with slight fluctuation and a floating knee cap. Active and passive motion of all extremities was painful. The patient admitted having sore throat three days previous to admission.

On February 20, there was marked disorientation, the patient was argumentative, the fever was lower, but the general condition was worse. The extremities were very painful. He objected strenuously to being moved. There were more petechiae and more redness of the left wrist. The blood sugar was 400 mg. per cent. Spinal fluid was normal. On this date, there was a murmur heard over the aortic area which had never been present before.

On February 21, the general condition was much worse. He was very drowsy; he would rouse to questions in the morning but roused with difficulty in the evening. His color was very poor and he was quite cyanotic. The râles at the base of both lungs had increased. The murmurs over the aortic area and the mitral area were softer. Both wrists were swollen and much more tender. The left knee was very tender. There was slightly more redness and swelling. There was a blood culture taken on this date.

On February 22, oxygen was started. The temperature curve rose steadily from 101 in the morning to 105 at midnight. He was very much worse. On the 23rd, his color improved under oxygen. There were no new petechial spots but those on the left arm and shoulder were larger and more numerous. There was some edema of the back. Cultures of the wrist and knee joints were taken on this date; no pus was found. The temperature and respiration rose steadily from 105 at midnight to 109 at 10:20 the next morning, when he expired.

Treatment of the patient was primarily symptomatic, and consisted in the use of penicillin in an attempt to control the infection. Insulin was prescribed in increasing doses in an attempt to control the hyperglycemia. Vitamins and parenteral fluids were used as supportive treatment. The diet was high in carbohydrates and proteins.

Post-mortem findings were: (1) hemochromatosis and cirrhosis of the liver, (2) hemochromatosis and fibrosis of the pancreas, (3) septic spleen, (4) cholelithiasis, (5) arteriosclerosis grade III of the aorta, (6) atrophy of the testes.

Mention should be made of nature's attempt to compensate for this extensive cirrhosis and the disturbance

*(Continued on Page 86)*

# PEPTIC ULCER IN INFANCY AND CHILDHOOD
## Report of Three Cases

ROBERT B. TUDOR, M.D.
Bismarck, North Dakota

HOLT,[10] in 1913, from a study of ninety-five cases of duodenal ulcer in infants below the age of one year, found that of sixty-five cases in which the age was given, 70 per cent of the patients were between the ages of six weeks and five months, nine occurring in the newborn. In 1922, Paterson[14] discovered in the literature 100 cases of duodenal ulcer in infants, and contributed two of his own. Proctor,[15] in 1925, in reviewing 1,000 cases of gastric ulcer and 1,000 cases of duodenal ulcer, found that in sixteen of the cases of gastric ulcer and in twenty-six cases of duodenal ulcer symptoms had been present since childhood. Butka,[4] in 1927, reported a ruptured gastric ulcer in an infant on the fourth day of life. Shore,[19] in 1930, reported a fatal perforated ulceration of the stomach in a male infant twenty-two months old. In 1932, Selinger[18] reported three cases of peptic ulcer in children under twelve months of age. Foschee,[8] in 1932, reviewed nineteen cases of gastric ulcer in children. In 1933, White[22] reported two chronic duodenal ulcers in children. In 1934, Smythe[20] reported two perforated gastric ulcers in newborns who lived six and seven days. In 1935, Tashiro and Kobayashi[21] reported a case of perforated duodenal ulcer in a child of seven. In 1940, Burdick[3] reported eight cases of peptic ulcer occurring at the Children's Hospital, Washington, D. C., from 1932 to 1939 out of 21,231 admissions and two cases seen in private practice. In 1941, Bird, Limper and Mayer[2] collected 243 cases of peptic ulcer in children from the literature. In 1941 Logan and Walters[11] collected fifteen cases of chronic gastric ulcer which had been recorded since Foschee's report in 1932, and contributed one of their own. Firman-Edwards,[7] in 1941, reported a case of a six-month-old child with cirrhosis of the liver who expired following a perforated gastric ulcer. There was no evidence of von Gierke's disease in the liver. In 1942, Newman[13] emphasized the importance of roentgen examination of the gastrointestinal tract in demonstrating peptic ulcer as the cause of obscure abdominal symptoms in children and added six cases to the literature. C. A. Stewart,[5] in 1943, reported four instances of ulceration in the gastrointestinal tract during the neonatal period. In two of the infants multiple gastric ulcers coexisted with erythroblastosis fetalis. Schwartz and Halberstam,[17] in 1943, successfully operated on an eleven-month-old male infant with perforated duodenal ulcer. In 1943, Benner[1] reported eight cases of peptic and duodenal ulcer which had been seen in the course of about 500 routine autopsies on infants and children at the Colorado General Hospital. One case was remarkable because of the association of ulcer with possible rhubarb poisoning. Two cases of apparently healed ulcer were included. Guthrie[9] found nine peptic ulcers in the autopsy material in the Glasgow Royal Hospital for Sick Children, between the years of 1914 and 1941, in a series of 6,059 postmortems on children under the age of thirteen (Table I). In 1944, Meiselas and Russakoff[12] reported a case of a bleeding peptic ulcer in a two and one-half months old child who subsequently expired. Donovan,[6] in 1945, reported ten cases of gastric and duodenal ulcers in infants and children, from the Babies Hospital, New York. Hemorrhage occurred in six of the ten cases. Perforation and pyloric stenosis were also observed. Rosenberg and Heath,[16] in 1946, reported a case of a gastric ulcer with perforation in one of premature twin boys. In this patient vomiting began on the ninth day of life. Brown stools and dark vomitus began on the thirty-sixth day. He died on the fifty-fifth day.

The etiology of peptic ulcers in infants and children in the majority is obscure. Prematurity has been mentioned as a cause. Cases have occurred in association with erythroblastosis fetalis. Holt[10] has emphasized that the age distribution of "marasmus" and peptic ulcers is similar. There may be an association between the development of ulcers and the onset of hydrochloric acid secretion in the stomach. The acidity of the gastric juice reaches a maximum within forty-eight hours of birth, when it is equivalent to that of an adult. Thereafter, it falls rapidly and remains

From the Department of Pediatrics, Quain & Ramstad Clinic, Bismarck, North Dakota.
Presented at the North Dakota Pediatric Society meeting, Fargo, North Dakota, October 15, 1949.

low during infancy. Ulcerations have been reported in association with stenosis of the intestinal tract. They have also occurred during the course of hepatic disease, pancreatic disease, and erythroblastosis. Two cases have followed trauma, one following external trauma, and one following aspiration of the newborn respiratory tract. For years the association between severe systemic infection and peptic ulceration has been appreciated. Many organisms, including streptococci and tubercle bacilli, have been cultured from these ulcers. Extensive body burns are many times followed by peptic ulcers, probably because of the infection which is usually also present. Stimulation of the diencephalon will produce hyperemia of the gastric mucosa and will increase gastric motility, hypertonus and hypersecretion. In the adolescent group peptic ulcer may be a psychosomatic disease. It has been suggested[22] that there is a possible association between the anterior pituitary gland and peptic ulcer in adolescent boys.

Ulcers[2] in the newborn, in whom the symptoms become outstanding within the first two weeks of life, have special characteristics. The great majority bleed seriously or perforate. In many the onset is precipitous without recognizable symptoms or signs. Except in a few cases neither clinically nor at autopsy is there evidence of intracranial injury or localized or generalized sepsis. The lesions are acute.

TABLE I. CASES OF GASTRIC AND DUODENAL ULCERS OBSERVED IN 6,509 ROUTINE AUTOPSIES ON CHILDREN[1,9]

| | Age | Sex | Diagnosis | Type of Ulcer |
|---|---|---|---|---|
| 1. | 2 days | Male | Pneumonia with Otitis Media | Duodenal Ulcer |
| 2. | 3 days | Female | Multiple Congenital Anomalies | Duodenal Ulcer |
| 3. | 3 days | Female | Hematemesis and Melena | Duodenal Ulcer |
| 4. | 5 weeks | Male | Melena and Hepatitis | Three Duodenal Ulcers |
| 5. | 2 months | Male | Pertussis with Pneumonia | Duodenal Ulcer |
| 6. | 10 weeks | Female | Melena and Otitis Media | Duodenal Ulcer |
| 7. | 10 weeks | Female | Frequent Vomiting | Duodenal Ulcer |
| 8. | 11 weeks | Male | Frequent Vomiting and Diarrhea for Two Days | Three Duodenal Ulcers |
| 9. | 3 months | Male | Marasmus | Two Duodenal Ulcers |
| 10. | 17 weeks | Male | Melena and Otitis Media | Duodenal Ulcer |
| 11. | 14 months | Male | Tuberculous Meningitis | Duodenal Ulcer |
| 12. | 3 years | Male | Rhubarb Poisoning | Duodenal Ulcer<br>Massive Hemorrhage |
| 13. | 6 years | Female | Hemopneumothorax Following an Accident; Melena | Duodenal Ulcer |
| 14. | 9 years | Male | Tetanus | Duodenal Ulcer |
| 15. | 10 years | Female | Bronchopneumonia and Ruptured Appendix | Gastric Ulcer |
| 16. | 11 years | Male | Meningitis with Otitis Media | Duodenal Ulcer<br>Massive Hemorrhage |

TABLE II.

| Age | Sex* | | Type of Ulcer | | Number Operated On | Symptoms | | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Duodenal and Pyloric | Gastric | | Stenosing | Perforated | Bleeding |
| Newborn (0-14 days) | 19 | 14 | 29 | 16 | 6 | 1 | 19 | 23 |
| 15 days-1 year | 32 | 20 | 56 | 10 | 9 | 8 | 17 | 31 |
| 2-6 years | 15 | 11 | 21 | 7 | 9 | 2 | 3 | 12 |
| 7-11 years | 42 | 24 | 53 | 17 | 32 | 11 | 15 | 12 |
| 12-15 years | 48 | 24 | 59 | 18 | 67 | 31 | 26 | 6 |
| Totals | 156 | 93 | 218 | 68 | 123 | 53 | 80 | 84 |

*In some of these the sex was not stated.

During the first twenty-four months of life beyond the newborn period, the nature of the disease changes. Although again the great majority of ulcers bleed grossly or perforate, there are often premonitory symptoms, such as refusal of feedings, evidence of abdominal pain, vomiting, occasional streaking of blood in the vomitus, sometimes occurring over a period of weeks or months before the onset of graver symptoms. Persistent pylorospasm or inflammatory or cicatricial pyloric stenosis is seen occasionally. Many of the patients are septic and marasmic.

Between the ages of two and six years recognized examples of peptic ulcer are very few.

As age advances beyond the seventh year, there is a rise in the number of cases recognized, with special accentuation on pyloric stenosis and perforation. Hemorrhage recedes into the background. Among the cases reported in this age

group, the symptoms have often been present intermittently or continuously over a period of months or years.

Hemorrhage from stomach or bowel is the most characteristic sign of peptic ulceration in children. In the series of cases here reported, bleeding occurred in 48 per cent of the children under one year and in 29 per cent of the total series. Duodenal ulcer may cause spasm of the pylorus, so that the condition may suggest pyloric stenosis. Regardless of the age of the child, a complaint of epigastric pain occurring sometime after meals, particularly at night, relieved by the ingestion of milk or other food or by emesis, and accompanied by tenderness in the abdomen, should lead to a very strong suspicion of peptic ulcer. Indefinite abdominal discomfort, particularly if epigastric in situation, even if unaccompanied by other characteristic symptoms, may be caused by ulcer. Hyperchlorhydria is absent usually.

Pathologically, the ulcers seen in childhood are similar to those seen in adults. If they are chronic in type, the appearance in no way differs from that of chronic ulcers in adults. A striking feature in all acute ulcers is the absence of inflammatory reaction, the lesion being purely destructive. Duodenal ulcers invariably occur above the ampulla of Vater and are generally situated on the posterior wall.

Of 286 cases of peptic ulcer, 283 collected from the literature and three of my own, 218 were duodenal and pyloric and sixty-eight were gastric, a ratio of 3 to 1. Operations were performed in 123 patients. Indications for operation were pyloric stenosis, perforation, hemorrhage and uncontrollable symptoms (Table II).

## Report of Personal Cases

*Case 1.*—P.L.Z. This patient was a white, male infant. The birth was apparently normal. The baby nursed normally and seemed to be doing well until the fifth day of life, when the abdomen became suddenly distended. At that time the child became cyanotic and very dyspneic. The temperature was 100.4° when the child arrived at the hospital. The child was in extremis when first seen. X-ray showed a large amount of air in the peritoneal cavity with the diaphragm displaced upward. The child expired one hour after admission to the hospital.

Postmortem examination showed a perforation of the upper end of the stomach through the greater curvature, through which gastric contents were escaping. The perforation measured 15 by 18 millimeters in diameter. The other abdominal organs were normal. There was partial atelectasis of both lungs.

*Case 2.*—T.E. This patient was a white male who was born one month prematurely. Birth weight was 5 pounds 2 ounces. On the second day of life he began vomiting bile. He passed meconium per rectum which contained squamous epithelial cells. The gastrointestinal x-rays showed a dilated bowel. On admission to the hospital he was an emaciated, jaundiced white male who had a feeble cry. There was moderate dehydration. Examination was essentially negative except for a distended abdomen. Chest x-ray was negative. The K.U.B. film showed a dilated large and small bowel with fluid levels. The baby was Rh negative. Hemoglobin was 116 per cent, and the white blood cell count, 8,200. The urine showed 3-plus albumin with 6 to 10 red cells and no sugar. Barium enema showed a stenosis of the sigmoid.

A transverse colostomy was done on the fourth day of life. The patient did well until the twentieth day of life. He was maintained with blood transfusions and given formula orally. The distal colon was irrigated with saline and mineral oil. The colostomy worked well at all times. He began passing blood from the proximal colostomy on the twenty-third day of life. Shortly after this he became distended and expired suddenly. Postmortem examination showed a perforated duodenal ulcer and a stenosis of the sigmoid.

*Case 3.*—A.B. This patient was a fourteen-year-old white male who had been complaining of abdominal pain since he was seven years old, and did not care to eat, especially at breakfast. Shortly after the pain began he had a tonsillectomy and adenoidectomy. In about six months he began losing weight and the pains seemed more severe. He would sometimes vomit intermittently for a month. He seemed to crave milk and chocolate. When the pain became severe, he would lie down, as he could not stand. His appendix was removed when he was eleven years old, without influencing the course of his illness. By the time he was twelve, he had become very nervous and would eat very little because he said "his stomach did not feel like it needed food." The pain continued until when first examined he had been vomiting for two months. He never had melena or hematemesis.

The family history was interesting in that both mother and father felt they had stomach trouble.

The patient was a well-developed, fairly well-nourished, white male. The temperature was 99°. Weight was 73 pounds. Blood pressure was 100/70. The skin was moderately dehydrated, but there was no general glandular enlargement. Head and neck were normal. The fundi were normal. Ears, nose and throat were normal. The heart and lungs were normal. The abdomen was diffusely tender. Genitalia were normal. Rectal examination was negative. Extremities were normal. Neurological examination was normal. Accessory clinical findings: hemoglobin, 88 per cent; urine

normal; white blood cell count, 9,050. Stool specimens were negative for occult blood on four occasions. Intravenous pyelograms were normal. Gastrointestinal x-rays showed the duodenal bulb to be markedly deformed, with an ulcer crater in the center of the bulb and a second crater in the distal portion of the bulb. The patient fainted twice during the examination. Analysis of the gastric content showed free hydrochloric acid of 23 degrees and combined hydrochloric acid of 15 degrees.

He was treated with bed rest, small blood transfusions, 1:5,000 atropine sulfate, Amphojel, multiple milk feedings and a bland diet. On discharge from the hospital his weight was 80 pounds. The gastric analysis at that time showed free hydrochloric acid of 28 and combined hydrochloric of 14 degrees.

On his last examination three months after his admission to the hospital, his weight was 85 pounds, and the hemoglobin was 81 per cent. He was feeling very well and had no complaints. X-rays at this time showed some irritability and deformity of the duodenal bulb, but no definite ulcer crater was noted.

## References


1. Benner, M. C.: Peptic ulcers in infancy and childhood. J. Pediat., 23:463-470, 1943.
2. Bird, C. E.; Limper, M. A., and Mayer, J. M.: Surgery in peptic ulceration of stomach and duodenum in infants and children. Ann. Surg., 114:526-542, 1941.
3. Burdick, W. F.: Peptic ulcer in children. J. Pediat., 17: 654-658, 1940.
4. Butka, H. E.: Ruptured gastric ulcer in infancy. JAMA, 89:198-199, 1927.
5. Crawford, R., and Stewart, C. A.: Gastric ulceration complicating erythroblastosis fetalis. Journal-Lancet, 63:131-134, (May) 1943.
6. Donovan, E. J., and Santielli, T. V.: Gastric and duodenal ulcers in infancy and in childhood. Am. Jour. Dis. Child., 69:176-179, 1945.
7. Firman-Edwards, L.: Cirrhosis of liver and perforated gastric ulcer in an infant of six months. Brit. M. J., 2:440, (Sept. 27) 1941.
8. Foshee, J. C.: Chronic gastric ulcer in children. JAMA, 99:1336-1339, 1932.
9. Guthrie, K. J.: Peptic ulcer in infancy and childhood. Arch. Dis. Childhood, 17:82-94, (June) 1942.
10. Holt, L. E.: Duodenal ulcers in infancy. Am. Jour. Dis. Child., 6:381-393, 1913.
11. Logan, G. B., and Walters, W.: Chronic gastric ulcer in childhood treated surgically. Ann. Surg., 113:260-267, 1941.
12. Meiselas, L. E., and Russakoff, A. H.: Bleeding peptic ulcer in infancy. Am. J. Dis. Child., 67:384-386, 1944.
13. Newman, A. B.: Peptic ulcer in childhood. Am. J. Dis. Child., 64:649-654, 1942.
14. Paterson, D.: Duodenal ulcer in infancy. Lancet, 1:63-65, (Jan. 14) 1922.
15. Proctor, O. S.: Chronic peptic ulcer in children. Surg., Gynec. & Obst., 41:63-69, 1925.
16. Rosenberg, A. A., and Heath, M. H.: Acute gastric ulcer with perforation in one of premature twins. J. Pediat., 28:93-95, 1946.
17. Schwartz, S. A., and Halberstam, C. A.: Duodenal ulcer in infancy. Arch. Pediat., 60:185-193, (April) 1943.
18. Selinger, J.: Peptic ulcer in infants under one year of age. Ann. Surg., 96:204-209, 1932.
19. Shore, B. R.: Acute ulcerations of the stomach in children. Ann. Surg., 92:234-240, 1930.
20. Smythe, F. W.: Gastric ulcers in the premature newborn. Am. J. Surg., 24:818-827, 1934.
21. Tashiro, K., and Kobayashi, N.: Perforated duodenal ulcer in child of seven. Am. J. Surg., 29:379-383, 1935.
22. White, C. S.: Chronic peptic ulcer in childhood. J. Pediat., 3:568-572, 1933.
23. Winkelstein, A.: Peptic ulcer in adolescence. J. Mt. Sinai Hosp., 12:733-775, (May-June) 1945.


This paper is dedicated to Dr. W. C. Davison, Dean of the Duke University Medical School, in appreciation of his counsel and guidance.

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### MUCIN-ALUMINUM HYDROXIDE-MAGNESIUM TRISILICATE

**"Mucotin"-Harrower.**—An antacid mixture of gastric mucin, dried aluminum hydroxide gel, U.S.P. ($Al_2O_3 xH_2O$), and magnesium trisilicate, U.S.P. ($2MgO.3SiO_2 xH_2O$), containing the labeled amounts of these ingredients.

*Actions and Uses.*—A mixture of histamine-free gastric mucin, aluminum hydroxide and magnesium trisilicate has been found to be an effective combination for oral administration in the control of symptomatic gastric hyperacidity and as an adjunct in the treatment of peptic ulcer. Gastric mucin has been shown to impart to the mixture a more distinct protective coating effect on the gastric mucosa than can be demonstrated with the use of antacids alone. Gastroscopic studies indicate that the mucin-antacid combination definitely coats the ulcer crater and may remain in the stomach for over an hour after instillation of the mixture. The antacid effect of the rapidly reacting aluminum hydroxide and the more slowly but prolonged reacting magnesium trisilicate, imparts to the mixture the advantages of both these antacids. The presence of magnesium trisilicate is also believed to counteract the constipating effect of the aluminum hydroxide but the available evidence on this point is not conclusive.

*Dosage.*—There is as yet no definite evidence by which to determine the optimum exact proportions of the antacids to be used in the mixture, but observations thus far indicate that best results are obtained with preparations containing approximately 10 per cent of gastric mucin. A ratio of 1:1.5:2.75 for gastric mucin-aluminum hydroxide-magnesium trisilicate has been found to give good results. A tablet preparation of these proportions containing gastric mucin 0.16 Gm., dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm. is recommended in doses of two tablets every 2 hours. The tablets should be well chewed and no fluids taken during the following half hour.

THE HARROWER LABORATORY, INC., GLENDALE 5, CALIF.

**Tablets Mucotin:** Each tablet contains gastric mucin 0.16 Gm. dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm.—JAMA, May 7, 1949.

# History of Medicine In Minnesota

## MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

Rochester, Minnesota

*(Continued from the December issue)*

There follows a chronological roster, essentially accurate, of the medical staff of the Second Minnesota Hospital for Insane (Rochester State Hospital) from 1879 to 1899, inclusive:

| | | |
|---|---|---|
| Jacob Eton Bowers | Superintendent | Jan. 1, 1879—Oct. 1, 1889 |
| William Alonzo Vincent | Assistant Physician | Mar. 1, 1881—Aug. 1, 1883 |
| Alexander Brodie Cochrane | Assistant Physician | Aug. 1, 1883—Dec. 1, 1884 |
| Homer Collins | Assistant Physician | Dec. 1, 1884—Oct. 1, 1889 |
| Robert McEwen Phelps | 2nd Assistant Physician | Mar. 1, 1885—Oct. 1, 1889 |
| | 1st Assistant Physician | Oct. 1, 1889—Oct. 1, 1890 |
| | Assistant Superintendent | Oct. 1, 1890—Sept. 12, 1912 |
| J. Robert Eby (med. student) | Apothecary | June ?, 1888—Oct. ?, 1889 |
| Harry Raymond Randall | Assistant Physician | Jan. 1, 1889—Oct. 1, 1889 |
| Arthur Foote Kilbourne | Acting Superintendent | June 1, 1889—Nov. 1, 1889 |
| | Superintendent | Nov. 1, 1889—Nov. 30, 1934 |
| Lloyd Anson Faulkner | Assistant Physician | Oct. 1, 1889—Nov. 1, 1889 |
| Nathaniel Morton Baker | Assistant Physician | Oct. 1, 1889—May 1, 1893 |
| Sara V. Linton (Mrs. R. McE. Phelps) | Assistant Physician | Oct. 1, 1889—Feb. 1, 1898 |
| Frederick Eduoard Franchere | Assistant Physician | Oct. 1, 1891—July 1, 1892 |
| Eric Olonzo Giere | Assistant Physician | July 1, 1892—Oct. 1, 1892 |
| George W. Moore | Intern | July 1, 1892—Oct. 1, 1892 |
| | Assistant Physician | Oct. 1, 1892—July 1, 1893 |
| ——— Jackman | Assistant Physician | July 1, 1893—No record |
| Cyrus Bowers Eby | Intern | July 1, 1893—Dec. 9, 1893 |
| | Assistant Physician | Dec. 9, 1893—Feb. 1, 1899 |
| H. H. Herzog | Assistant Physician | Dec. 1, 1893—Feb. 1, 1899 |
| W. H. Withrow | Apothecary | Dec. 1, 1893— 1898? |
| Mary Elizabeth Bassett | Assistant Physician | July 19, 1895—Feb. 28, 1896 |
| ——— Cheever | No Record | 1896? |
| Rose Anne Bebb | Intern | July 1, 1897—Feb. 1, 1898 |
| | Assistant Physician | Feb. 1, 1898—Mar. 3, 1900 |
| Abraham Franklin Strickler | Assistant Physician | May 16, 1899—June 10, 1899 |
| | Assistant Superintendent | June 10, 1899—July 10, 1899 |
| Ernest Z. Wanous | Assistant Physician | May 19, 1899—July , 1899 |
| | Assistant Superintendent | July , 1899—Feb. 1, 1902 |
| Oscar C. Heyerdale | Assistant Physician | July 13, 1899—Aug. 1, 1912 |
| | Assistant Superintendent | Aug. 1, 1899—July 1, 1937 |
| Charles L. Chapple | Assistant Physician | Aug. 31, 1899—April 1, 1911 |

*St. Mary's Hospital.*—The first general hospital in Olmsted County and a large surrounding region, St. Mary's Hospital is believed to owe its inception to the tornado of August 21, 1883, which destroyed much of north Rochester, killed thirty-five persons and injured more than fifty others. All unaffected persons in

Rochester, physicians and laity, rallied to aid the sufferers, who were housed temporarily in private homes, in hotels, at the Academy of Our Lady of Lourdes and elsewhere. On the day after the storm a hospital was improvised in Rommel's Hall, in central Rochester, and Dr. W. W. Mayo was appointed physician in charge, and his son-in-law, Dr. D. M. Berkman (a veterinarian), an able organizer, was appointed steward. On the same day Mother Mary Alfred, Superior of the Sisters of the Third Order of St. Francis of the Congregation of Our Lady of Lourdes, volunteered aid in nursing the injured and delegated four sisters to that service.

To Mother Alfred the catastrophe gave so clear a vision of what a permanent institution for care of the sick could mean to the community that, not long afterward, she told Dr. Mayo that the sisters intended to establish and maintain a hospital in the city, and asked him to help plan the hospital and to take charge of it. The doctor tried to dissuade Mother Alfred: Public opinion would be adverse, since hospitals at that period were not in good general repute; the town was too small to support a hospital; the expense of construction and equipment would be great; and he himself, then in his seventieth year, was too old to assume the responsibility she asked. Mother Alfred nevertheless proceeded quietly with plans to raise the necessary money.

In 1887, Dr. Mayo having consented to serve, a tract of nine acres was bought as the hospital site, a mile west of the city post office and just outside the city limits at the end of Zumbro Street. In the next two years Dr. Mayo and his elder son, Dr. W. J. Mayo (C. H. Mayo was still in medical school), traveled widely to study hospital planning and management. In August, 1888, Joseph D. Billingsley, of Winona, contractor, began the construction. In the spring of 1889 George Weber and Granville Woodworth, of Rochester, assumed the contract, and in the autumn of that year completed the work. During the period of construction it was announced that the hospital facilities would be available to all physicians of good standing in the region, that the sick would be received regardless of race, creed or financial condition and that they might choose any physician they wished. When the building was nearing completion, plans were made for a ceremonial opening of the hospital on October 1, 1889, but as it happened the beginning was simple. On September 30, 1889, St. Mary's Hospital admitted its first patient, who was in need of surgical aid for cancer of the eye, and on that morning Dr. W. J. Mayo and Dr. C. H. Mayo performed the operation, with Dr. W. W. Mayo administering the anesthetic.

On the afternoon of October 8 the Olmsted County Medical Society held a meeting at the hospital, at which were present the members of the society, some of whom were physicians from counties neighboring Olmsted County, and invited guests. At the meeting Dr. W. T. Adams, of Elgin, Dr. A. W. Stinchfield, of Eyota, and Dr. H. H. Witherstine, of Rochester, were a committee who drafted and presented the following resolutions, which were accepted unanimously:

> WHEREAS, the Sisters of St. Francis have erected this beautiful and commodious hospital in the City of Rochester and we, the physicians of Olmsted County and adjoining counties, represented in the Olmsted County Medical Society, upon examination find it to be one of the finest and best arranged hospitals in the state, Therefore,
>
> Resolved, that it is worthy of the support and patronage of the medical fraternity of this vicinity.
>
> Resolved, that much is due to Dr. W. W. Mayo for his valuable suggestions with reference to the details of the hospital.

The ceremony of blessing the hospital was held on October 24, 1889, in the presence of a few invited citizens.

The new hospital was a three-story building of red brick with rough stone trim. It contained two ten-bed wards, one three-bed ward, one semiprivate room and two private rooms, a total capacity of twenty-seven hospital beds. Modern conveniences, which at that time were almost unknown in Rochester, were lacking. Four Sisters of St. Francis constituted the administrative and nursing staff and, frequently, the maintenance staff. Dr. Mayo and his sons were the physicians in charge. Miss Edith Graham (later Mrs. C. H. Mayo), of Rochester, the first trained nurse in the city, who had been graduated that year from the Woman's Hospital of Chicago and who was employed by the Drs. Mayo in their offices, gave the sisters lessons in professional nursing and became the first woman anesthetist at St. Mary's Hospital.

Not long after the hospital was established, Dr. W. W. Mayo began to reduce his professional activities, and he soon relinquished the chief responsibility to his sons. Until 1892 these two, "the greenest of a green crew," as they afterward described themselves, carried all medical and surgical services alone; in surgery, turn about, each acted as assistant to the other. They visited hospitalized patients early in the morning, operated from 7:30 a.m. or earlier until 1 p.m. or later, in the afternoon held consultations at the offices downtown, and were on call, and often at the bedside of patients, all night. In February, 1892, Dr. A. W. Stinchfield came from Eyota to join the Drs. Mayo in practice, in offices and hospital, and in the spring of 1894 Dr. Christopher Graham, of Rochester, recently graduated in medicine, became a member of the group and the first intern at St. Mary's. For three years these five physicians were the hospital staff. By 1899 the group included nine physicians.

For thirteen years Dr. W. J. Mayo and Dr. C. H. Mayo were the only surgeons at St. Mary's Hospital. When the hospital opened, the brothers, grateful to the Sisters of St. Francis for unique opportunity, declared that they never would "hold the knife outside St. Mary's Hospital," and they kept their word. Only on occasion of emergency or when they gave aid as surgeons at the state hospitals for insane at St. Peter and Rochester, did other operating rooms know them.

In its first three months, in 1889, St. Mary's Hospital received sixty-eight patients. There were 301 admissions in 1890 and 315 in 1891. The annual registration continued to increase gradually until, in 1899, the hospital received 938 patients. It is recalled that some months before the hospital building was completed, Dr. C. H. Mayo optimistically prophesied to Mother Alfred that in time the hospital would "get patients from all these towns around here," and that Mother Alfred hopefully but somewhat doubtfully agreed. Within three years patients were coming from Illinois, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, New York, Ohio and Wisconsin. Within twenty years they were coming from nearly every state of the Union and from every continent of the world. In its first ten years two major additions were made to the hospital building. Since 1900 there have been six great additions, exclusive of St. Mary's Isolation Hospital, and corresponding expansion of services. In 1918 the sisters purchased the Lincoln Hotel, remodeled it and converted it into an isolation unit, which was opened as St. Mary's Isolation Hospital on June 14, 1918. Near St. Mary's, but not an addition to the hospital buildings proper, the unit provided additional hospital space and made possible an important extension of service.

Although from the beginning St. Mary's Hospital met with phenomenal success and usefulness as a self-supporting institution, its earliest years were difficult. At the time the hospital was planned, and when it was opened, hospitals were regarded by the general public as last resorts for the homeless and the destitute

and were classed with prisons, insane asylums and county institutions, so that most persons would not consider entering a hospital as patients. To increase the difficulty, the project at first did not have the endorsement of all of the Sisters of St. Francis, nor of the Catholic community, who were in the minority in Rochester. Sectarian feeling was high, and there was hostility toward the hospital on the part of certain Protestants of the city. The situation was made more disagreeable by a wave of organized anti-Catholic propaganda, of the American Protective Association, that was sweeping the country at that time, and residents of the locality were either partisan or conservative. Most of the local physicians, although they esteemed the Mayos personally, were not inclined to associate themselves with a doubtful venture, and consequently an attempt to organize a general medical staff for the hospital was a failure. In addition, there were Catholics, and especially Catholics who had relatives in the medical profession, it is said, who felt that the hospital should not be staffed by Protestant physicians. It was even suggested that the hospital should be closed. Among both Catholics and Protestants, however, the close personal friends of Mother Alfred and of Dr. W. W. Mayo and his sons, knowing the sincerity of purpose with which the hospital had been planned and built, remained steadfast in their friendliness towards the undertaking.

In the early nineties, when the first addition to the hospital was being projected, a second wave of organized propaganda swept over the Northwest, and because of it the early opposition to St. Mary's was revived. The hospital once more was criticized as a Catholic agency and patients were advised not to go there for treatment. In Rochester several Protestant ministers and their congregations entered into the campaign. Homeopathic physicians, endorsed by the opposing ministers and congregations, in the autumn of 1892 opened a new hospital, the Riverside, which was received with enthusiasm. When Dr. W. J. Mayo and Dr. C. H. Mayo, faithful to St. Mary's Hospital, refused to become associated with the new hospital or to operate there, they again became the subjects of severe criticism, which again they accepted without comment. The local regular physicians of the region during this period remained essentially neutral toward St. Mary's and took no part in the management of the new hospital. At the end of three years the Riverside Hospital closed and sectarian opposition to St. Mary's ended.

Gradually the public came to appreciate the worth of St. Mary's Hospital, and physicians of the region other than the Drs. Mayo began to avail themselves of the privilege of bringing in their patients. Some of the patients who were brought could have been cared for satisfactorily at home, however, and these needlessly occupied hospital beds. From time to time others who had been exposed to contagious disease were admitted inadvertently, and frequently moribund patients, were brought in. The lack of space for the seriously ill, the worry and difficulty of dealing effectively with contagious disease, and the increase in the annual hospital mortality, not great but a cause for anxiety, after a few years caused the sisters, about 1895, to take the courageous step of establishing a new ruling: that the facilities of the hospital still should be available to all physicians in good standing, but that no patient should be admitted who had not been examined by one of the Drs. Mayo. The rule was carried out tactfully, the Drs. Mayo simply assuring the sisters and themselves that the privileges of the hospital were not abused and that its welfare was not endangered.

St. Mary's Hospital opened as a general hospital, but the influx of surgical patients and the lack of room for them soon caused the sisters to change the institution to an exclusively surgical hospital until sufficient space could be provided for general hospital work. It was not until 1914, after six additions had been

made to the building, that there was marked increase in facilities for the medical treatment of patients in the hospital.

In a booklet, *A Souvenir of Saint Mary's Hospital,* issued by the sisters in 1922, the following dedication appears: "To the memory of Mother Mary Alfred, O.S.F., Foundress of Saint Mary's Hospital, and of William W. Mayo, M.D., who directed and organized the foundation, this volume is affectionately dedicated." Sister Mary Hyacinth was in charge of the hospital until Mother Mary Alfred was appointed superintendent on November 5, 1889. Sister Mary Hyacinth replaced Mother Mary Alfred on August 28, 1890. Sister Mary Joseph, who succeeded Sister Hyacinth, on September 9, 1892, guided St. Mary's Hospital until her death on March 29, 1939, when Sister Mary Domitilla became superintendent.

The progress of St. Mary's Hospital has continued without interruption (1949), as has its relationship with the Drs. Mayo and their associates, a group which since 1914 has been known officially as the Mayo Clinic.

*The Riverside Hospital.*—The Riverside Hospital, mentioned earlier in this history, functioned in Rochester from November, 1892, into September, 1895. The hospital was established by Dr. W. A. Allen, an esteemed pioneer homeopathic physician who settled in Rochester in 1872, and Dr. Charles T. Granger, a native son of Olmsted County. Dr. Granger was graduated with distinction from the Hahnemann Medical College of Chicago in March, 1892, was licensed in Minnesota after passing a creditable examination, and in April entered into partnership with Dr. Allen. In July, 1892, the two doctors bought a large residence on Line Street, East Rochester, remodeled it and equipped it as a hospital, modern in its day, and employed a competent nursing staff. The hospital was well received by the press and by the public, and its wards, medical and surgical, soon were filled with patients. As was the custom in that period, an occasional patient published in a local newspaper an expression of gratitude for the good care received.

A group of Rochester women, many of them of the Universalist congregation, organized the Riverside Hospital Aid Society, to help supply equipment for the wards and to prepare surgical dressings. In March, 1894, a group of 175 friends of the hospital surprised Dr. Allen with a social gathering on his sixtieth birthday and presented him with a large new homeopathic medicine case.

By the summer of 1895 the operation of the hospital had become impracticable. In the middle of September Dr. Allen, then mayor of Rochester, announced that he was moving to Saint Paul, to enter practice with Dr. O. H. Hall, late of Zumbrota, that he would leave his local practice in the hands of Dr. Granger, but that he would return to Rochester each week in order to oversee construction of the new city sewer, which was under way.

On September 27, 1895, the *Rochester Post* stated that because of Dr. Allen's departure it had been decided to close the Riverside Hospital, which henceforth would not be open for the reception of patients. In March, 1896, Dr. Allen resumed residence and practice in Rochester. After August, 1896, he and Dr. Granger were not in partnership.

### The Beginnings of the Mayo Clinic

The Mayo Clinic was not established. It is a development that had its beginnings in the private general practice of one competent pioneer physician and surgeon, Dr. W. W. Mayo, who came to Rochester, Olmsted County, in the spring of 1863. From a private practice there grew a private group practice in which individualism in co-operative form was fostered and in which it has been maintained.

Dr. W. W. Mayo came to Rochester from Le Sueur as examining surgeon on the

Enrollment Board of the First Congressional District of Minnesota. When he left the board two years after his appointment, he opened an office on Third Street for private practice. In the next twenty years he changed his office location some seven times and on several occasions entered into partnership for medical practice with one local practitioner or another. These associations were short lived. From the beginning he won the confidence of laity and profession and gradually built up a practice which by the early eighties was one of the largest in southeastern Minnesota.

In May, 1883, shortly before his elder son, Dr. W. J. Mayo, returned home from medical school to begin practice with him, Dr. Mayo established offices over the drug store of George Weber, on the corner of the then Main Street and Zumbro Street, where the C. F. Massey Company's department store now is. In the next thirteen years there were, at intervals of about two years, extensive renovation, enlargement and re-equipment of the offices, to meet the requirements of the rapidly growing practice. A major change was made just before Dr. C. H. Mayo came home from medical school to join the family team, in 1888, and comparable changes were made in 1892, when Dr. A. W. Stinchfield became a partner, and in 1894, when Dr. Christopher Graham joined the group. In 1893 equipment was improved by addition of an expensive Leitz microscope, imported from Germany, which was used in a small upstairs room. In 1896 the *Olmsted County Democrat* gave an enthusiastic description, under the heading, "Complete Offices," of the quarters of the Drs. Mayo, Stinchfield and Graham, who were then occupying additional space both on the ground floor and upstairs, and stated that Weber and Heintz, whose drug store adjoined the offices, also had increased their space to make room for their prescription department. In 1898 Dr. M. C. Millet and Dr. Gertrude Booker joined the Mayo group. On November 29, 1900, the firm moved into quarters that had been especially created for them on the ground floor of the new Masonic Temple, diagonally across the junction of Zumbro Street and Main Street from the former offices. There were now general reception rooms, a reception room and library, "for visiting physicians who have come here with cases or to attend clinics at St. Mary's," a clerical and business office, consulting and examining rooms for the staff physicians, a dark room for "eye cases," and a small laboratory under the charge of Dr. Isabella Herb, who had begun work in January, 1900, as pathologist and anesthetist at St. Mary's Hospital. In this laboratory, routine tests of blood, urine and sputum were made. There was an x-ray room, which was not put into active use, however, until Dr. H. S. Plummer joined the group in 1901. In the fourteen years of the firm's occupancy, the offices were enlarged within the limits of the Masonic building and by the use of detached rooms in buildings near by.

It is important to note the fact that Dr. W. W. Mayo and, in due time, his sons and later associates scrupulously maintained office hours, and that by so doing they built up a large office practice—this in a period when the average physician maintained an office only as a starting point for his daily rounds of visiting patients in their homes.

In his early practice Dr. W. W. Mayo performed surgical operations in the homes of his patients, as was the custom of the time. By the late seventies he was utilizing rooms in one of the small hotels of Rochester for surgical operations and for postoperative care of patients from a distance, who by then were coming to him in considerable numbers. In the eighties, as stated earlier, he had a small private hospital of eight or nine beds in the home of a Mrs. Carpenter, a practical nurse in north Rochester. He was recognized in those years as a versatile and courageous surgeon, and he occasionally invited interested physicians from

neighboring towns and from Saint Paul and Minneapolis to observe surgical operations, especially ovariotomy. Those occasions were the first surgical clinics held in Rochester, although they were not called clinics. After the sons joined their father, the surgical practice especially increased. They had a natural bent for surgery. They were eager for new knowledge, and they traveled, alternately, to study and to observe the work of other surgeons, in Chicago and in Boston, New York, Philadelphia and elsewhere. In those early years Christian Fenger, Arpad C. A. Gerster, Robert Weir, William T. Bull, Frederick Lange, Robert Abbe, William W. Keen and Joseph Price and many others taught them much. Soon they traveled abroad. They attended meetings of medical societies, local, regional, national and international, and early began to contribute reports and papers to the programs and to medical journals.

By 1890 many local physicians were coming to observe the surgical work of the Mayo brothers. In the newspapers of southeastern Minnesota of the nineties are to be found little items to the effect that Dr. ———, of Eyota, or Plainview or Wabasha, for example, or a group of doctors, had spent a day or several days in Rochester "attending clinics at St. Mary's" or "observing operations at the Drs. Mayo." In these years physicians from near-by states began to come, bringing patients and staying to observe the surgical clinics. Drs. A. J. Oschner and J. B. Murphy, of Chicago, were among the first visitors to come from large cities. Well before 1905 there were physicians from the East, and from Europe, among the observers and among the personal friends of members of the firm. Evidence of nation-wide recognition of the work in Rochester is found in the unanimous election, in 1905, of Dr. W. Mayo to the presidency of the American Medical Association. Visiting physicians in Rochester began to speak of the Mayos' clinics, of the Mayos' clinic at St. Mary's Hospital, and soon of the Mayo Clinic. St. Mary's probably was the first, as early as 1899, to refer to "clinic patients."

By the early or middle nineties, surgery, at first one part of a general practice, had become the predominant part of the Mayos' work, and it so remained for nearly twenty years. In 1904 only fourteen patients were treated medically at St. Mary's Hospital, which had opened in 1889 as a general hospital. As stated earlier, it was not until 1914 that special provision was made for the medical care of patients in the hospital. That year marked the increasing interest of the Drs. Mayo and their associates in the science and art of internal medicine and the beginning of continuous development of all facilities for the medical care of hospitalized patients.

The educational work in medicine and surgery, which since 1915 has been carried on by the Mayo Foundation for Medical Education and Research, affiliated with the University of Minnesota, began in the early nineties when a few medical students, usually local young men, spent their summer vacations at St. Mary's, observing operations and working as orderlies and as volunteer helpers in the little laboratory. Perhaps the first graduate observer of long attendance was Dr. W. A. Chamberlain, of St. Charles, who in 1898 spent several months in Rochester. Gradually the Drs. Mayo took in young graduate physicians as clinical helpers and as assistant surgeons, training them carefully themselves. For some years these men were known as interns, externs, and assistants. It was in 1906 that weekly staff meetings were inaugurated by Dr. H. Z. Griffin, who had joined the Drs. Mayo that year. These meetings and resulting and related special staff conferences and seminars have had an important part in the growth of medical education in the clinic and the foundation.

*(To be continued in the February issue)*

F. J. Elias, M.D.
President, Minnesota State Medical Association

# President's Letter

## 1950

ORDINARILY a calendar doesn't mean much to a physician. Except for seasonal complaints—the spring epidemics, the late summer allergies, and the many hazards that winter brings—the physician's life is dictated more often by his wrist watch than his calendar. But, like everyone else, physicians on January first are jolted out of their routine into an evaluation of the year past and predictions and plans for the year ahead.

The Minnesota State Medical Association can look back on 1949 with satisfaction. It has been a good year. We have been able to distinguish our sociological, as well as our medical and scientific responsibilities, and to minimize neither. This has come about through the devoted and high-principled leadership that the Association was fortunate enough to gain, and through the active co-operation of the membership.

In 1950, I feel sure, we can expect continued attempts to negate recognition of medical advances and to turn medical care into a commodity. This to be sold or doled out, according to nebulous plans, made both inside and outside the government, by individuals who assume that an interest in the subject—either sincerely humanitarian or hypocritical and selfish—and/or their status as *recipients* of medical care are all the qualifications they need to be medical experts.

In addition, then, to our primary responsibility to the patient, to provide him with increasingly better care, we are faced with usurpation of medical practice that would transform it from a profession into a business.

It is our prime obligation to save ourselves and our patients, and medicine and the public of the future, from this eventuality. In accomplishing this objective, we are fulfilling more than one requirement of good citizenship. For the physician, in convincing his fellow men that it is to their best interest to reject proposals contrary to the American way, must mingle more in his community than, perhaps, has been his custom. In fending off injurious legislation, the doctor will find himself marching regularly to the polls and aiding in the selection of legislators, not politicians.

It is an honor to have been elected to the highest office of the Minnesota State Medical Association during this time of crisis, when the health of the nation is precariously balanced between progress and deterioration, and when the action we take, as individuals and members of an association, may well influence the choice.

My best efforts are pledged to maintaining the ethics and standards of the profession and in interpreting them to the people of Minnesota in terms of their own health and happiness.

President, Minnesota State Medical Association

# Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

## THE YEAR 1950

IT IS difficult, in facing the new year, to be complacent about the state of affairs in our own country and the world in general.

The estimated federal deficit of 5.5 billion dollars is disconcerting to one who believes in the balancing of budgets. With high production and employment we should be paying off on our huge national debt rather than further increasing it. It is obvious that the only way to balance the budget is by increasing taxation or reducing expenditures. Economists say that high taxes have already resulted in disappearance of risk capital which has resulted in lending by the government rather than by private capital. Taxation has well nigh reached the point beyond which there will be diminishing returns. While visible taxes are burdensome, the invisible ones which are present in everything that is bought are insidious, in that the public is not so conscious of their existence and is not sufficiently spurred on to demand government economy. Sufficient demand on the part of the public for the need of government economy is the only influence which will affect Congress and our State legislatures.

Ways have been pointed out for effecting economy in government; the Hoover report for one. Its recommendations have not been followed. Federal subsidy of states for activities which are state responsibilities foster extravagance. The temptation for the states to match federal subsidies seems well nigh irresistible. The citizens of each state are paying for both expenditures. Price pegging by the government, while it artificially assists one group, only increases the cost of living and taxes. The more the artificial regulation of our economy, the greater the number of government employees needed.

Our own people are sick and tired of war. How much more so must be the people of the rest of the world. And still war and rumors of war are in the limelight—due almost entirely to communism. The disturbing element we call communism, and it is so self-named, actually consists of minority groups headed by the most diabolic despots the world has ever known; despots who have acquired control of governments and maintain themselves in power by force, intimidation and deceit. Every effort is made to destroy all religion, and love for God and fellow man is simply absent. There can be no room in our country for communists whose avowed purpose is to destroy our democratic form of government by force and intrigue.

We are among those who see little distinction between the aims of communism and socialism. Both aim towards the equal distribution of this world's goods and, therefore, the stifling of incentive and the suppression of industry. A real communism has never existed. We have a typical example of what near socialism can do to the economy of a nation like England. The recent reversal of public opinion away from socialism in New Zealand and Australia is indicative of what can happen in a democratic country and of what may happen in England. Must we go further into socialism before we realize that, human beings being what they are, it just will not work?

We are among those who believe that right will triumph in the end. Our country has muddled through many a crisis, and we believe we shall come through our present difficulties. Communistic régimes, based as they are on ruthless force, just cannot continue indefinitely. Citizens of all countries are much the same in their make-ups and, although temporarily misled or dominated by false leaders, have the same hopes and desires. It is our fervent wish that the year 1950 may show evidence of wisdom in the conduct of our government and more justice and peace throughout the world.

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## ISOLATION AND QUARANTINE REQUIREMENTS

HEALTH department regulations for isolation and quarantine help in the control of communicable disease but the relative importance of quarantine should be kept in mind to avoid neglecting more fruitful measures. These include diagnosis, treatment, and disinfection concurrent-

ly and terminally; reporting and epidemiological investigation to discover sources of infection, carriers, missed and suspected cases; individual protective measures such as vaccination and immunization against smallpox, diphtheria, whooping cough, tetanus, typhoid, and other diseases; community preventive measures such as sanitary water supply and sewage disposal, and pasteurized milk and cream; and most important public health education to stimulate people to take advantage of preventive medicine before disease develops. Quarantine and isolation requirements may benefit the ill patient more than the community by reducing his chances of contracting cross infections.

Regulations must be based on knowledge of the disease in question and they change as our knowledge changes. As in other medical fields, however, there occasionally appears the danger of the more science, the less art. Considerable emotional content is linked to quarantine procedures, whose origins date from early plagues, pestilence, superstitions, and hysteria. This partly accounts for slowness to change regulations.

Today public opinion as to the reasonableness of quarantine is still important for practical application. An acceptable compromise between the dictates of science and common sense, therefore, is frequently the result when rules are adopted. Because conditions vary so greatly throughout the State as to available personnel and interest for operating public health programs, the regulations of the State Board of Health set minimum requirements only and local boards of health have authority and are encouraged to add whatever additional precautions seem necessary.

In recent years quarantine regulations have become more liberal and, happily, more uniform in all states. Increasingly consideration has been directed to scientific essentials, clarifying the handling of those persons definitely infected, the cases and carriers; those possibly infected, the contacts; and the general community. Minnesota's regulations have followed this trend, sometimes in the teeth of considerable public feeling against liberalization, and sometimes only after some pushing from others for more lenient rules.

Two of the acute communicable diseases, scarlet fever and poliomyelitis, illustrate these trends. Scarlet fever in recent years has been mild, and responsive quickly to newer methods of treatment. Experience has demonstrated the futility of quarantine in stopping the spread of streptococcal respiratory infections, yet joined with other measures for control, some regulation is accepted as necessary by everyone. Minnesota now requires isolation of the patient for the duration of illness, with a minimum of seven days from onset. Close contacts, if children, are quarantined for the same period, while adult contacts if well are not restricted unless local authority so decides.

In poliomyelitis, regulations have admittedly not controlled the disease while conversely impeding the best use of hospital facilities. Following a national conference in 1949, state health authorities everywhere, including Minnesota, are modifying their regulations so that patients with poliomyelitis are isolated for seven days from onset or the duration of fever if longer, and contacts are freed from unnecessary restrictions.

Interestingly, regulations for isolation of infectious cases of tuberculosis, Minnesota's most serious communicable disease, are being strengthened and clarified. The control of chronic diseases such as tuberculosis, where infected persons may remain dangerous to their associates for long periods of time, even years, may be more directly influenced by isolation and quarantine regulations than in acute self-limited diseases. On the other hand, it is difficult to attribute much of the control of typhoid fever that has come about in Minnesota to the regulation by statute of those few hundred typhoid carriers listed in Health Department records, who presumably excrete typhoid germs for years with little change in their mode of living.

It must be accepted, in conclusion, that changing knowledge will bring changing practices. In hardly any other field of human health have there

***Special Announcement***

**MSMA ANNUAL DUES**

Following the recommendation of the Finance Committee, the House of Delegates of the Minnesota State Medical Association voted May 8, 1949, to continue the $10 assessment for 1950, and thereafter make it permanent by amending the Constitution to raise the dues to $30 per capita.

Members of the Minnesota State Medical Association are hereby notified that dues for this year will be a total of $30, and pending House of Delegates action at the annual meeting, June 12, 13 and 14, dues for the Minnesota State Medical Association will be permanently $30.

been such great changes in recent generations as in that of communicable diseases; quarantine regulations must expect adaptations in light of changing circumstances.

D. S. Fleming, M.D., Chief
Section of Preventable Diseases
Minnesota Department of Health

## DEFICIT GOVERNMENT SPENDING

OUR FEDERAL debt is now 252.7 billion dollars or $1700 per person. Whereas, in 1947 the treasury showed a surplus of three-quarters of a billion and in 1948 a surplus of $8,419,469,844; in 1949 the deficit was $1,811,-440,048, and for the fiscal year 1950 there is an estimated deficit of $5,500,000,000.

It was Lenin's advice to let the capitalistic countries spend themselves into bankruptcy. Are we following his advice?

The responsibility for the deficit lies, for the most part, with Congress. However, we have a president who, instead of acting as a brake to spending, is continuously advocating more spending and higher taxes. Lobbies for special favors for numerous groups of citizens share in responsibility for the present extravagance of government. States that match federal subsidies with the idea that they are getting something for nothing also are to blame.

If some evidence of statesmanship in federal and state governments doesn't make its appearance in the near future, the usual result of deficit spending, bankruptcy, will inevitably follow with untold universal suffering.

Public opinion is a powerful factor in correcting poor government. The public's attention is being called through various publicity channels to the senseless extravagance of the federal and state governments. We, the people, can put an end to deficit government spending by informing legislators of our wishes.

## COLDS AND ALLERGY

THE COMMON cold is responsible for more loss of time among employes than any other single disease. Medical science has been unable either to prevent or cure the common cold, and the thread-worn saying that a cold untreated will last two weeks and treated will last a fortnight is only too true.

The fact is, we don't understand any too well what a cold actually is. It is generally accepted that it is a virus infection of the respiratory tract which is followed by secondary bacterial invaders. There is reason to believe that the cold virus is present constantly in the upper respiratory passages in at least some persons, and we know that a variety of bacteria are present at all times in all nasal cavities. If the cold virus is ever present, we must assume a natural or acquired immunity in the absence of symptoms of a cold. The existence of the lack of immunity to the cold virus explains the rapid spread of colds to 100 per cent of an isolated community upon the exposure to one with a cold. The well-known frequent return of colds in certain individuals argues a short-lived immunity or the existence of more than one cold virus.

The rôle of exposure to drafts and chilling in the development of a cold is not clear. It is known that chilling the body causes a reflex vasoconstriction and lowering of temperature in the nasal mucous membrane. Does this cause a lowering of local resistance which allows a cold virus that is present to multiply? On the other hand, some individuals daily exposed to cold and chilling seldom contract colds. What is more, experimental inoculation of human beings and animals with cold virus can be accomplished without the element of chilling.

Recent literature has called attention to the probability of a relationship between allergy and the common cold.* The manifestations of a coryza are identical to the allergic response in hay fever. A cold may be considered an allergic response in an individual susceptible to the cold virus. It has been shown that allergic individuals—those who suffer from hay fever, asthma or food allergy—contract colds more often than normal persons. These constitute the cold-susceptible group who are repeatedly contracting colds. The authors state, "The response of the physically allergic person to these environmental factors (i.e., chilling of body, wetting of feet) may very well result in an outpouring of histamine into various shock centers throughout the body, particularly the respiratory tract, in sufficient quantity to destroy the local defense mechanism preparing the

*Fox, Noah, and Livingston, George: Role of allergy in the epidemiology of the common cold. Arch. Otolaryng., 496:575-586, (June) 1949.

tissues for acceptance of the virus of the common cold." This assumes that the cold virus is already present. The authors state that secondary bacterial invaders are just as likely to be activated. On the other hand, they call attention to the fact that colds during attacks of hay fever are not common, so there must be other factors besides the condition of the mucous membrane. Immunity, though often transitory, does result—otherwise recovery from a cold would not take place. With exposure to enough antigen, all persons can be made to react in an allergic manner. It is easier, however, to consider the cold-susceptible person as one who is allergic to the cold virus. Again, according to the authors, 80 per cent of cold susceptible persons have other allergies or come from families with allergies, and 100 per cent of such persons have hyperplastic disease of the upper respiratory tract.

It is reasoned that if, at the first appearance of the allergic response indicative of the onset of a cold, an anti-histaminic is taken and the nasal mucous membrane returned to normal or near normal, the cold might be cut short by preventing the development of the secondary bacterial invaders. Reports of trial use of various anti-histaminics in sizable groups of individuals indicate that colds can be thus cured in twenty-four to forty-eight hours in about 50 per cent of cases and alleviated in an additional 25 per cent. In about 25 per cent, the method is useless. Interestingly, some anti-histaminics are effective for some individuals and not for others. Some, of course, produce undesirable side reactions, such as sleepiness, and some do not.

The Food and Drug Administration has released a number of anti-histaminics for over-the-counter sale at drug stores, providing the printed instructions as to dosage meet with its approval. The newspapers are running full page advertisements of these preparations. It will be difficult for the biological houses that are attempting to limit the sale of their anti-histaminics to prescription trade to resist the temptation to share in the millions of dollars which will be spent in over-the-counter sales.

The anti-histaminics containing neo-hetramine are said to produce fewer side effects and are less likely to have harmful effects. Probably small children should not be given any anti-histaminics.

Reports indicate, however, that something has been found at last which will reduce the duration of the common cold. If it is only 50 per cent effective, it will be worth while.

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### CO-OPERATION IN THE TREATMENT OF TUBERCULOSIS

The skills required in the modern treatment of pulmonary tuberculosis are many and varied. The frequent association of tuberculous and nontuberculous complications adds further to the need for practically all medical and surgical specialty services, not excluding research facilities. The closest possible association and interchange of information and ideas between the tuberculosis and general hospitals is for these reasons evidently desirable. Particularly is it desirable for the teaching hospitals, which are the principal centers of clinical research, to maintain active contact with tuberculosis institutions, even to provide a quota of beds for the interchange of patients. CARL MUSCHENHEIM, M.D., *Am. Rev. Tuberc.*, July, 1949.

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### THE RATIONALE OF BLOOD TRANSFUSIONS IN THE TREATMENT OF THE TRUE TOXEMIAS OF PREGNANCY

*(Continued from Page 41)*

such a condition. Among putatively full-blooded Ute Indians, 98 per cent of them belong to Group O. At one time these Indians were a pure Group O people. As a result of crossing with the white man, there is now, however, a small amount of Group A among them. Among the Blackfeet Indians, we have a high percentage of Group A—there are about 80 per cent who belong to Group A. It is reasonable to assume that these Indians were at one time a pure Group A people, and when you find Group O among them, it is a result of crossing either with other Indians, the white man, or the Negro. O is the only other type found among them. All Indians and all Eskimos who have been examined are Rh positive. I have inquired among the Agency physicians in the Indian tribes I visited in the United States, Canada, and Alaska about the incidence of erythroblastosis fetalis and toxemia of pregnancy, and it is the general impression that the incidence is extremely low. Dr. Schrader said he did not recall finding any toxemia of pregnancy among full-blooded Blackfeet Indians. The records were checked, and it was found that among the Blackfeet Indians there is little recorded toxemia of pregnancy as follows:

| | |
|---|---|
| Eclampsia | 0.3 cases per 1000 pregnancies |
| Nephritis | 3.0 cases per 1000 pregnancies |
| Hyperemesis Gravidarum | 1 case per 1000 pregnancies |

What is the explanation? Certainly these findings do not go against, but rather agree, with the theory presented by Dr. La Vake.

# MEDICAL ECONOMICS

**Edited by the Committee on Medical Economics**
**of the**
**Minnesota State Medical Association**
**George Earl, M.D., Chairman**

## WHITAKER & BAXTER REPORT PROGRESS

Visualizing compulsory health insurance as a "key political issue" in the next Congress and in the congressional elections, Whitaker & Baxter, the AMA's National Education Campaign directors, reported on progress to date at the Interim Session in Washington, December 6.

The two-point program of the campaign, as defined last February, was: (1) To defeat the compulsory health insurance legislation pending in congress; and (2) to put a permanent stop to the agitation for socialization of the medical profession by alerting the people to the costly consequences of such a program, and by providing the finest type of voluntary health insurance for all in need of prepaid medical protection.

### Plan "Simple"

Whitaker & Baxter explained the plan of their campaign as "simple and involving only one basic requirement—to get the truth about the advantages and splendid accomplishments of American medicine, and about the disadvantages and dangers of government-medicine, to the people, together with factual proof in both cases."

The techniques used have been: a nationwide pamphlet distribution campaign, a vigorous publicity campaign, a speaking campaign and an endorsement drive. Fifty-five million pieces of campaign literature were prepared and distributed and more than 65,000 posters of "The Doctor" were mounted in hospitals, clinics, bus and railway stations, business buildings and anywhere else that would afford the public a view of the famed Fildes' painting with its challenging inscription, "Keep Politics Out of this Picture."

**The endorsement campaign has been rewarded with the active, public support of 1,829 national, state and local organizations.**

End result of the campaign thus far, according to Whitaker & Baxter, is: "The proponents of government medicine made a strategic retreat, and pigeonholed their legislation for the current session of Congress."

Lest too early optimism result from this report, Mr. Whitaker and Miss Baxter cautioned:

"Although broad public disapproval of the government-medicine program is widely acknowledged—and although the Presidential plan to give its creator, the federal security administrator, cabinet status, was soundly defeated in a test of the same grass roots convictions—the administration is yet unconvinced."

## LEGION COMMANDER SCORES TAX MEDICINE

"The American Legion is opposed to national health insurance because it would stunt the growth and genius of the medical profession," the Legion's national commander said, December 8, at the Interim Session, "and because it would add another link to an already long bureaucratic chain."

George N. Craig issued this statement prior to an off-the-record address before the Conference of County Medical Society Officers.

"Whether you call it state medicine or socialized medicine, it is still political medicine," he added. "Under such a system, the government is the boss, and the individual is no longer free to apply his initiative and imagination to the advantage of the profession and patients alike. Inevitably, the scientist is supplanted by the politician who in turn must dispense his services on a plane of partisan patronage."

## WHY NOT INCLUDE PETS IN SCHEME?

The *Wall Street Journal* can see no reason for excluding quadrupeds from the government's manifold schemes for medical care, pensions and various other forms of security.

Recognizing that many families are unable to provide systems of annuities and the like for their pets, the *Journal* takes, for instance, the cat:

"The most deserving of cats might thus be left, purely by accident, in destitution while the less deserving loll in luxury."

Happily, there is a solution, the editorial goes on to point out:

"The only way to correct this inequity is for the cat pensions to be provided by the federal government on a uniform and non-contributory basis. And to remove further inequities, the same should be done for family canines, who are often more loyal and loved, and for the bovines and equines, who are certainly more useful than cats.

"Why should one dog have the best of food and medical care whilst one more unfortunate huddles in alleyways?" asks the *Journal*, with as penetrating a social analysis as may be found anywhere in Fair Deal campaign literature. "Under nationalized veterinarianism there would be no dependence upon biological pedigrees."

### No Restraint on Budget

Pooh-poohing the notion that the cost would be prohibitive, the *Journal* reminds its readers that both the Secretary of the Treasury and the Director of the Budget have made it clear that in dealing with welfare matters there must be no restraint because of budget limitations.

The editorial concludes with this stirring paragraph:

"Doubtless the Senate Finance Committee, which plans a study of the whole pension system, will consider both the justice and the vote-getting potentialities of some such plan. Considering what we receive from the cow while she is young and productive, who suggests society is not her debtor when she is superannuated?"

## BRITISH FINANCE CHIEF OPTIMISTIC

Sir Stafford Cripps, British chancellor of the exchequer, is optimistic about the financial fate of England under what he prefers to call "a mixed economy."

The "busiest man in England" was interviewed recently by an editor of *U. S. News and World Report* and described himself as "not quite so socialistic perhaps as some of my American friends."

During the course of the interview, he said:

"But of course nationalization is not in the least likely to happen in the many private-enterprise industries that exist, *other than those which are basic to the economy.*"

Asked his opinion on the trend of America toward more and more social security benefits and the soundness of this trend, in view of the fact that "in a democracy . . . people can vote themselves bigger and bigger benefits," Mr. Cripps hedged thusly:

### Give Up Democracy?

"That depends upon the responsibility of the democracy. Of course if a democracy takes so irresponsible a view of its obligations that it only regards the exchequer as a deep till into which it can perpetually dip its hand, I should personally suggest giving up democracy!"

Continuing, he said:

"But that is not how we look at it in this country (England). We feel that it is quite possible, by giving people the information and the knowledge of economic facts, to instill into them a realization that they themselves are in fact paying for their own social benefits by taxation and by other means, and that therefore they must exercise restraint in the way in which they utilize those benefits and also in the amount of them they demand."

He neglects to add why the people of England have not been generally informed that the dollar a week they pay, which supposedly finances medical and related services, is actually channeled to "cash benefits," such as unemployment insurance and funeral expenses. Seventy-eight per cent of the cost of the health scheme comes out of general taxes and, from this fact, it may be deduced that the British public has no accurate knowledge of where tax money goes, and is actually being misled concerning the cost of the medical care program.

## HOSPITAL OCCUPANCY RATE LEVELING

From a study of more than one hundred nongovernmental hospitals of varying size throughout the country, it has been ascertained that occupancy is continuing to level off from the peak of 1946.

"And there seems little evidence to indicate that this trend will change significantly in either direction," states Richard D. Vanderwarker, director of the Passavant Memorial Hospital, Chicago, Illinois.

### Costs Rising

Considering the hospital's patient load as a relatively stable factor, Mr. Vanderwarker goes on to examine the rising costs of operating hospitals. Among the causes he cites are: wages, which, he feels will continue to rise because (a) there will be continuing pressure for hospitals to meet prevailing wages paid in industry and commerce, and (b) the market value of professional personnel services is increasing; the cost

*(Continued on Page 86)*

## MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

**230 Lowry Medical Arts Bldg., Saint Paul, Minnesota**

**Julian F. DuBois, M.D., Secretary**

### PHYSICIANS LICENSED FEBRUARY 11, 1949

**January 1949 Examination**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| AUSTIN, William Edward | U. of Manitoba | MD 1946 | 2707 Nicollet Ave., Minneapolis, Minn. |
| CONDE, Richard Louis | U. of Minnesota | MB 1948 | 500 S.E. Delaware, Minneapolis, Minn. |
| ENGSTROM, Robert Birger | U. of Illinois | MD 1940 | 1009 Nicollet Ave., Minneapolis, Minn. |
| FOUST, Jr., Glenn Taylor | U. of Virginia | MD 1942 | Mayo Clinic, Rochester, Minn. |
| FURMAN, Morris John | U. of Manitoba | MD 1944 | University of Minnesota Medical School, Minneapolis, Minn. |
| GRIEBIE, Grant Leonard | Northwestern U. | MB 1943<br>MD 1944 | Norwood, Minn. |
| JOHNSON, Carl Eric | Northwestern U. | MB 1945<br>MD 1946 | Mayo Clinic, Rochester, Minn. |
| JOHNSON, Richard S. | U. of Minnesota | MB 1946<br>MD 1947 | Minneapolis General Hospital, Minneapolis 15, Minn. |
| JOHNSTON, Richard McCreary | U. of Indiana | MD 1944 | Mayo Clinic, Rochester, Minn. |
| JORDAN, Robert Atkin | U. of Kansas | MD 1944 | Mayo Clinic, Rochester, Minn. |
| JOSSELSON, Albert Joseph | Northwestern U. | MB 1944<br>MD 1945 | Mayo Clinic, Rochester, Minn. |
| McNEILL, James Ian | Queen's U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| RIPLEY, Herbert Robert | U. of California | MD 1945 | Mayo Clinic, Rochester, Minn. |
| ROBINSON, Arthur Weaver | U. of Kansas | MD 1944 | Mayo Clinic, Rochester, Minn. |
| SANFORD, John Bryant | U. of Minnesota | MB 1948 | Deaconess Hospital, Minneapolis, Minn. |
| SARGENT, James Wellington | U. of Michigan | MD 1943 | Mayo Clinic, Rochester, Minn. |
| TESAR, Charles Eugene | U. of Minnesota | MB 1947<br>MD 1948 | Wayne Co. General Hosp., Eloise, Mich. |
| THELEN, Emil Patrick | Loyola U. | MD 1943 | Mayo Clinic, Rochester, Minn. |
| TVERBERG, Miltzo Stephen | Western Reserve | MD 1947 | Midway Hospital, St. Paul 4, Minn. |
| WEYAND, Robert Devere | U. of California | MD 1945 | Mayo Clinic, Rochester, Minn. |
| WIGGINS, James Kenneth | U. of Texas | MD 1942 | 4937 Columbus Ave., Minneapolis, Minn. |
| WILSON, Theodore Warren | U. of Minnesota | MB 1947<br>MD 1948 | U.S. Naval Training & Dist. Center, Main Dispensary, Port Hueneme, California |

**Reciprocity Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| BELLOMO, John | St. Louis U. | MD 1948 | Grand Meadow, Minn. |
| BOYD, Jr., David Armitage | Jefferson Med. Col. | MD 1930 | Mayo Clinic, Rochester, Minn. |
| BRZUSTOWICZ, Richard John | Long Is. Col. | MD 1942 | Mayo Clinic, Rochester, Minn. |
| BURGERT, Jr., Eran Omer | U. of Oklahoma | MD 1947 | Mayo Clinic, Rochester, Minn. |
| CARPENTIERI, Joseph | U. of Louisville | MD 1943 | University of Minnesota Medical School, Minneapolis, Minn. |
| CLARK, Elizabeth Alice | U. of Michigan | MD 1940 | 2301 Jefferson St., Duluth, Minn. |
| PARKER, Charles Walter | U. of Colorado | MD 1940 | 315 3rd St. S.W., Wadena, Minn. |
| STAPLEY, Jr., Lorel Aaron | Northwestern U. | MB 1945<br>MD 1946 | Mayo Clinic, Rochester, Minn. |
| TWIGGS, Leo Funk | U. of Michigan | MD 1941 | 605 N. Main St., Austin, Minn. |

**National Board Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ARATA, Justin Eugene | Indiana U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| BALLANTYNE, Alando Jones | Columbia U. | MD 1942 | Mayo Clinic, Rochester, Minn. |
| BOYD, Thomas Milton | U. of Colorado | MD 1943 | Mayo Clinic, Rochester, Minn. |
| CARLIN, Maurice Patrick | Marquette U. | MD 1946 | Veterans Adm. Hosp., Minneapolis, Minn. |
| CARLISLE, John Chesney | Harvard U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| DAHL, James Curtis | U. of Minnesota | MB 1946<br>MD 1946 | Veterans Adm. Hosp., Minneapolis, Minn. |
| FEENEY, Michael James | Duke U. | MD 1943 | University of Minnesota Hospital, Minneapolis 14, Minn. |
| GRIFFIN, Jr., George D. J. | Loyola U. | MD 1947 | Mayo Clinic, Rochester, Minn. |
| IZQUIERDO, Eleanor Roverud | Women's Med. Col. of Pa. | MD 1947 | 855 1st St. S.W., Rochester, Minn. |
| KELLY, Anthony Hill | Northwestern U. | MB 1946<br>MD 1947 | Mayo Clinic, Rochester, Minn. |
| MILLER, Roland Drew | Northwestern U. | MB 1945<br>MD 1946 | Mayo Clinic, Rochester, Minn. |
| OSTERHOLM, Richard Stanley | U. of Nebraska | MD 1943 | Mayo Clinic, Rochester, Minn. |
| SAIDY, John Theodore | U. of Minnesota | MB 1946<br>MD 1946 | Mayo Clinic, Rochester, Minn. |

| *Name* | *School* | | *Address* |
|---|---|---|---|
| TAYLOR, Jr., Robert Wendel | Harvard U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| UPSON, Jr., Mark | Columbia U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| WATSON, John Benezet | U. of Iowa | MD 1945 | Mayo Clinic, Rochester, Minn. |
| ZELLER, William Webb | Geo. Wash. U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| ZIMMERMANN, Bernard | Harvard U. | MD 1945 | 1530 Edgcumbe Road, St. Paul 5, Minn. |

## PHYSICIANS LICENSED MAY 20, 1949

### April 1949 Examination

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ACHOR, Richard William Paul | U. of Oregon | MD 1945 | Rochester State Hospital, Rochester, Minn. |
| ALCOTT, Donald L. | Rush-Chicago U. | MD 1942 | Mayo Clinic, Rochester, Minn. |
| ANDERSON, Alton Duane | U. of Wisconsin | MD 1943 | Mayo Clinic, Rochester, Minn. |
| ARONOW, Regine Ann | U. of Minnesota | MB 1948<br>MD 1949 | Children's Hospital, 5224 St. Antoine St., Detroit 2, Michigan |
| ASTA, Joseph James | U. of Minnesota | MB 1948 | St. Mary's Hospital, Duluth, Minn. |
| BASKIN, John Lane | U. of Texas | MD 1944 | Mayo Clinic, Rochester, Minn. |
| BEARD, Earl Francis | Northwestern U. | MB 1946<br>MD 1948 | Mayo Clinic, Rochester, Minn. |
| BERENS, James J. | Cincinnati U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| BRADLEY, Robert Austin | Baylor U. | MD 1947 | Student Health Service, Ag. Campus, Univ. of Minnesota, St. Paul, Minn. |
| BRESETTE, James Edward | Northwestern U. | MB 1945<br>MD 1946 | Mayo Clinic, Rochester, Minn. |
| BUTIN, James Walker | U. of Kansas | MD 1947 | Mayo Clinic, Rochester, Minn. |
| CLARK III, Percival Le Mon | U. of Tennessee | MD 1945 | Mayo Clinic, Rochester, Minn. |
| COLBY, Jr., Malcolm Young | U. of Texas | MD 1943 | Mayo Clinic, Rochester, Minn. |
| COOLEY, Jack Crain | Northwestern U. | MB 1947<br>MD 1948 | Mayo Clinic, Rochester, Minn. |
| DUNLAP, Robert Weyer | Western Reserve | MD 1945 | Mayo Clinic, Rochester, Minn. |
| FANGMAN, Richard Joseph | Creighton U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| GILBERT, Louis William | U. of Nebraska | MD 1943 | Mayo Clinic, Rochester, Minn. |
| GOOSSEN, George P. | Southwestern Medical College | MD 1948 | Mountain Lake, Minn. |
| HATTOX, Jr., John Stanley | U. of Tennessee | MD 1945 | Mayo Clinic, Rochester, Minn. |
| HEMPSTEAD, Richard Hartley | U. of Michigan | MD 1944 | Mayo Clinic, Rochester, Minn. |
| HILGERMANN, George O. | Marquette U. | MD 1948 | 4622 Casco Ave., Minneapolis, Minn. |
| HOLIAN, Darwin Kennard | U. of Minnesota | MB 1947<br>MD 1948 | 3209 Edgewood Ave., Minneapolis 16, Minn. |
| HUIZENGA, Kenneth Albert | Western Reserve | MD 1944 | Mayo Clinic, Rochester, Minn. |
| JOHNSON, Adelaide McFadyen | U. of Chicago | MD 1932 | Mayo Clinic, Rochester, Minn. |
| JOHNSON, Jr., Charles Michael | U. of Chicago | MD 1945 | Mayo Clinic, Rochester, Minn. |
| KELSEY, James Edward | U. of Minnesota | MB 1948 | 10 Evergreen Place, Loch Arbour, N. J. |
| KJENAAS, Ervin Arthur | U. of Minnesota | MB 1948 | Letterman General Hospital, San Francisco, California |
| KLINE, Richard Frank | U. of Minnesota | MB 1947<br>MD 1948 | Montgomery, Minn. |
| LEHMANN, Arnold Louis John | U. of Manitoba | MD 1944 | Veterans Adm. Hosp., Minneapolis, Minn. |
| LORTON, William Lewis | U. of Chicago | MD 1947 | Box 1254, Keewatin, Minn. |
| MARKLE IV, George Bushar | U. of Pa. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| MATTSON, Roger Peter | U. of Illinois | MD 1948 | 5831 Knox Ave. So., Minneapolis, Minn. |
| McDONALD, Owen Gerard | Rush Medical College of U. of Chicago | MD 1939 | 205 W. 2nd St., Duluth, Minn. |
| McVAY, Jr., James Robert | Johns Hopkins U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| MILROY, Thomas Wands | U. of Manitoba | MD 1945 | Ancker Hospital, St. Paul, Minn. |
| OLFELT, Paul Charles | U. of Minnesota | MB 1947 | 2428 34th Ave. So., Minneapolis, Minn. |
| RAGSDALE, Jr., William Egbert | U. of Tennessee | MD 1939 | Mayo Clinic, Rochester, Minn. |
| REINHARDT, James Henry | Temple U. | MD 1947 | Box 214, Red Lake Falls, Minn. |
| SAXON, Jr., Foy Fulward | U. of Tennessee | MD 1945 | Mayo Clinic, Rochester, Minn. |
| SMITH, John Lawrence | U. of Rochester | MD 1948 | Walker Air Force Base, 509 Med. Group, Roswell, New Mexico |
| SMITH, Reginald Armitage | U. of Alberta | MD 1942 | Mayo Clinic, Rochester, Minn. |
| SPONSEL, Kenath Herrick | U. of Chicago | MD 1943 | Mayo Clinic, Rochester, Minn. |
| STOY, Robert Andrew | Loyola U. | MD 1948 | 105 1st St. S.E., Little Falls, Minn. |
| UTNE, John Richard | U. of Illinois | MD 1948 | 4144 N. Fremont, Minneapolis, Minn. |
| VAUGHN, Charles Gordon | U. of Minnesota | MB 1947<br>MD 1948 | Plainview, Minn. |
| WALL, James Otis | U. of Minnesota | MB 1948 | 1981 Princeton Ave., St. Paul 5, Minn. |
| WILSON, Joseph Didjon | Stanford U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| WRIGHT, William Spurgeon | U. of Minnesota | MB 1945<br>MD 1946 | University of Minnesota Hospitals, Minneapolis 14, Minn. |

### Reciprocity Candidates

| *Name* | *School* | | *Address* |
|---|---|---|---|
| AHRENS, Herbert George | U. of Nebraska | MD 1945 | Mayo Clinic, Rochester, Minn. |
| DIDCOCT, John William | Vanderbilt U. | MD 1937 | Mayo Clinic, Rochester, Minn. |

## MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

| *Name* | *School* | | *Address* |
|---|---|---|---|
| DURHAM, Jr., Harry Blaine | Northwestern U. | MB 1944<br>MD 1945 | Mayo Clinic, Rochester, Minn. |
| KLEMME, Arthur Edward | U. of Michigan | MD 1945 | Maternity Hospital, 2215 Glenwood Ave., Minneapolis, Minn. |
| LAMP, Jr., Clyde Benjamin | U. of Pittsburgh | MD 1945 | Mayo Clinic, Rochester, Minn. |
| MARTIN, William Joseph | Georgetown U. | MD 1943 | Mayo Clinic, Rochester, Minn. |
| NICKERSON, Neil Dwight | Western Reserve | MD 1943 | Bratrud Clinic, Thief River Falls, Minn. |
| PHILP, David Robart | U. of Louisville | MD 1948 | 515 S. 2nd St., Mankato, Minn. |
| ROSENTHAL, Macey Herschel | U. of Virginia | MD 1944 | Mayo Clinic, Rochester, Minn. |
| ZIMMER, Frederick Ellis | U. of Pennsylvania | MD 1945 | Mayo Clinic, Rochester, Minn. |

### National Board Candidates

| *Name* | *School* | | *Address* |
|---|---|---|---|
| AHRENS, Robert Myron | New York Medical College | MD 1947 | 904 Rice St., St. Paul, Minn. |
| BARTHOLOMEW, Lloyd Gibson | U. of Vermont | MD 1944 | Mayo Clinic, Rochester, Minn. |
| DAWE, Clyde Johnson | Johns Hopkins U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| HAINES, Gerald Leon | U. of Vermont | MD 1944 | University of Minnesota Hospitals, Minneapolis 14, Minn. |
| MANKIN, Haven Winslow | Geo. Wash. U. | MD 1947 | Mayo Clinic, Rochester, Minn. |
| McNEIL, John Joseph | Tufts U. | MD 1942 | University of Minnesota Hospitals, Minneapolis 14, Minn. |
| MILLER, John Martin | U. of Indiana | MD 1945 | Mayo Clinic, Rochester, Minn. |
| PEMBERTON, Albert Hogeland | Northwestern | MB 1947<br>MD 1948 | Mayo Clinic, Rochester, Minn. |
| RICE, Fred Armstrong | Harvard U. | MD 1943 | 1009 Nicollet Ave. So., Minneapolis, Minn. |
| SOLTERO, Donald Emanuel | Marquette U. | MD 1944 | Mayo Clinic, Rochester, Minn. |
| STORKAN, Margaret Ann | Creighton U. | MD 1944 | University of Minnesota Medical School, Minneapolis, Minn. |
| SWIFT, Edward Albert | Syracuse U. | MD 1943 | Mayo Clinic, Rochester, Minn. |
| TODD III, John Wesley | Medical College of Virginia | MD 1947 | Mayo Clinic, Rochester, Minn. |

### PHYSICIANS LICENSED JULY 15, 1949

### June 1949 Special Examination

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ADAMS, Jr., Paul | U. of Minnesota | MB 1949 | University of Minnesota Hospitals, Minneapolis 14, Minn. |
| AMBERG, John | U. of Minnesota | MB 1949 | 950 E. 59th St., Chicago, Ill. |
| BENNETT, Frank Mocroft | U. of Minnesota | MB 1949 | 3400 S.W. Veterans Rd., Portland, Ore. |
| BOYSEN, Edwin Elberg | U. of Minnesota | MB 1949 | Ancker Hospital, St. Paul, Minn. |
| BROWN, James L. | U. of Minnesota | MB 1949 | Alameda Co. Hospital, Oakland, Calif. |
| CAMPION, Richard Sylvester | U. of Minnesota | MB 1949 | St. Luke's Hospital, Denver, Colorado |
| CORRIGAN, Cyril J. | U. of Minnesota | MB 1949 | Miller Hospital, St. Paul, Minn. |
| DESPOPOULOS, Agamemnon | U. of Minnesota | MB 1947<br>MD 1948 | Philadelphia General Hospital, Philadelphia, Pennsylvania |
| DOYLE, James Raymond | U. of Minnesota | MB 1949 | Madigan General Hospital, Tacoma, Wash. |
| EASTWOLD, Conrad Engwold | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| EKLUND, Jr., Edwin Gustaf | U. of Minnesota | MB 1949 | Percy Jones General Hospital, Battle Creek, Michigan |
| ERICKSON, Lief W. | U. of Minnesota | MB 1949 | Milwaukee Gen. Hosp., Milwaukee, Wis. |
| FLEMING, Richard E. | U. of Minnesota | MB 1949 | Milwaukee Gen. Hosp., Milwaukee, Wis. |
| FLOERSCH, Adrian Joseph | Creighton U. | MD 1948 | 4119 E. Lake St., Minneapolis, Minn. |
| GINSBERG, James P. | U. of Minnesota | MB 1949 | Research & Educational Hosp., Chicago, Ill. |
| GROENIG, David Cress | U. of Minnesota | MB 1949 | St. Luke's Hospital, Denver, Colo. |
| HACKER, Elaine Mary | U. of Minnesota | MB 1949 | Detroit Receiving Hospital, Detroit, Mich. |
| HANSON, William Byrne | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis, Minn. |
| HEDIN, Roger Willard | U. of Minnesota | MB 1949 | Madigan General Hospital, Tacoma, Wash. |
| HENSLER, Nestor M. | U. of Minnesota | MB 1949 | Madigan General Hospital, Tacoma, Wash. |
| JARVIS, Marilyn Anderson | U. of Minnesota | MB 1949 | Miller Hospital, St. Paul, Minn. |
| JAY, Alan Robert | U. of Kansas | MD 1942 | Swedish Hospital, Minneapolis, Minn. |
| KEITH, Paul Jackson | U. of Minnesota | MB 1949 | Denver General Hospital, Denver, Colo. |
| LARSON, Gerald Elsworth | U. of Minnesota | MB 1949 | St. Mary's Hospital, Duluth, Minn. |
| LINCOLN, Thomas Abraham | U. of Minnesota | MB 1949 | Ancker Hospital, St. Paul, Minn. |
| LUNDBLAD, Robert Myron | U. of Minnesota | MB 1949 | St. Luke's Hospital, Duluth, Minn. |
| MAGNUSON, Raymond Carl | U. of Minnesota | MB 1949 | St. Luke's Hospital, Duluth, Minn. |
| MARRONE, Patrick Henry | U. of Minnesota | MB 1949 | St. Mary's Hospital, Duluth, Minn. |
| McCABE, Margaret Mary | U. of Minnesota | MB 1948<br>MD 1949 | 420 Genesee Bank Bldg., Flint, Mich. |
| McKENNA, Elizabeth Mary | U. of Minnesota | MB 1949 | Milwaukee County General Hospital, Milwaukee, Wisconsin |
| McKENNA, William Thomas | U. of Minnesota | MB 1946<br>MD 1946 | 4339 Cedar Ave., Minneapolis, Minn. |
| MEINERT, John Keith | U. of Minnesota | MB 1949 | University of Michigan Hospital, Ann Arbor, Michigan |

| *Name* | *School* | | *Address* |
|---|---|---|---|
| NELSON, Jr., George Ernst | U. of Minnesota | MB 1949 | St. Luke's Hospital, Chicago, Ill. |
| NESSE, James Allan | U. of Minnesota | MB 1949 | Brooke Army General Hospital, San Antonio, Texas |
| O'CAIN, Raymond Kirby | Medical College of South Carolina | MD 1941 | 102-110 2nd Ave. S.W., Rochester, Minn. |
| OPSAHL, Lawrence Jurgen | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| POND, Norman Eggleston | U. of Minnesota | MB 1949 | Highland Alameda County Hospital, Oakland, Calif. |
| REIF, Robert William | U. of Minnesota | MB 1949 | Cleveland City Hospital, Cleveland, Ohio |
| SANDE, John Peter | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| SAXON, Eugene Ira | U. of Minnesota | MB 1949 | San Francisco General Hospital, San Francisco, Calif. |
| SCUDAMORE, Harold Hunter | Northwestern U. | MB 1945<br>MD 1946 | 102-110 2nd Ave. S.W., Rochester, Minn. |
| SOLHAUG, John Sims | U. of Minnesota | MB 1949 | St. Luke's Hospital, Denver, Colo. |
| STAHN, Louis H. | U. of Minnesota | MB 1949 | Sacred Heart Hospital, Spokane, Wash. |
| STAVIG, Paul Hjertaas | U. of Minnesota | MB 1949 | Madigan General Hospital, Ft. Lewis, Tacoma, Wash. |
| STERRIE, Norman Anderson | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| STONE, Julius | U. of Minnesota | MB 1949 | University of Oklahoma Hospital, Oklahoma City, Okla. |
| STUHLER II, Louis George | U. of Minnesota | MB 1949 | Detroit Receiving Hospital, Detroit, Mich. |
| TROUP, Stanley Burton | U. of Minnesota | MB 1949 | Strong Memorial Hosp., Rochester, N. Y. |
| TUCKER, Richard Carlyle | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| WALSTON, James Herbert | Northwestern U. | MB 1947<br>MD 1948 | Clarkfield, Minn. |
| WEISS, James Moses Aaron | U. of Minnesota | MB 1949 | U. S. Marine Hospital, Seattle, Wash. |
| WENDT, H. Paul | U. of Minnesota | MB 1949 | Milwaukee County General Hospital, Milwaukee, Wis. |
| WICKS, Edwin Owen | U. of Minnesota | MB 1949 | Eastern Maine Gen. Hosp., Bangor, Maine |
| WILHELM, Warren Fred | U. of Chicago | MD 1945 | 102-110 2nd Ave. S.W., Rochester, Minn. |
| WOLTJEN, Myron James | U. of Minnesota | MB 1949 | Asbury Hospital, Minneapolis, Minn. |
| WONG, Lillian | U. of Minnesota | MB 1949 | San Joaquin General Hospital, French Camp, Calif. |
| ZELL, John Richard | U. of Minnesota | MB 1949 | Naval Hospital, Philadelphia, Pa. |

**Reciprocity Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ARTIST, Elmer Jacob | U. of Nebraska | MD 1943 | 102-110 2nd Ave. S.W., Rochester, Minn. |
| EVERETT, Jr., Ernest Frank | Washington U. | MD 1945 | Veterans Adm. Hosp., Minneapolis, Minn. |
| JOHNSON, William Steele | Medical College of Virginia | MD 1943 | 953 Medical Arts Bldg., Minneapolis, Minn. |
| LINDEMAN, Raymond Jacob | U. of Tennessee | MD 1948 | Paynesville, Minn. |
| VEIT, Henry | Marquette U. | MD 1943 | 2703 W. Wisconsin Ave., Milwaukee Wis. |
| WINCHELL, Clarence Paul | U. of Michigan | MD 1945 | Veterans Adm. Hosp., Minneapolis, Minn. |

**PHYSICIANS LICENSED JULY 15, 1949**

**June 1949 Examination**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| BELCHER, Royden | U. of Minnesota | MB 1949 | Ancker Hospital, St. Paul, Minn. |
| BLOCK, Jr., William Joseph | U. of Texas | MD 1945 | Mayo Clinic, Rochester, Minn. |
| BOLIN, Richard Reuel | Marquette U. | MD 1948 | 4340 N. Drake Ave., Chicago, Ill. |
| DETAR, Jr., Burleigh Eli | U. of Kansas | MD 1945 | Mayo Clinic, Rochester, Minn. |
| FRIEDELL, Gilbert Hugo | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| FRIEND, Charles Albert | Tufts Med. Col. | MD 1948 | 2703 E. Lake St., Minneapolis, Minn. |
| GARLOCK, Grant Leonard | Hahnemann Medical College | MD 1948 | 217½ Barker Bldg., 3rd St., Bemidji, Minn. |
| HANSON, Hugh Henderson | U. of Texas | MD 1943 | Mayo Clinic, Rochester, Minn. |
| HARADA, Thomas Taketo | Temple U. | MD 1943 | Veterans Hospital, Minneapolis, Minn. |
| HEALY, Michel Maurin | Georgetown U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| LAM, Robert C. | W. China Union U. | MD 1945 | St. Mary's Hospital, Grand Rapids, Mich. |
| LAY, Coy Lafayette | U. of Texas | MD 1946 | Mayo Clinic, Rochester, Minn. |
| MARTIN, Albert Charles | U. of Illinois | MD 1944 | 119 S.W. Park, Luverne, Minn. |
| MELIUS, Marshall J. | U. of Minnesota | MB 1949 | Milwaukee Co. Hospital, Milwaukee, Wis. |
| OWENS, Jr., Frederick Mitchum | U. of Chicago | MD 1939 | Veterans Adm. Hosp., Minneapolis, Minn. |
| PAPANDREOU, Christine | Boston U. | MD 1947 | Division of Psychiatry, University of Minnesota Hospitals, Minneapolis, Minn. |
| SCHEIDEL, Alois McKeon | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| SEAGLE, Joseph Bowman | Indiana U. | MD 1947 | Mayo Clinic, Rochester, Minn. |
| SOWADA, Ernest Joseph | U. of Minnesota | MB 1949 | Ancker Hospital, St. Paul, Minn. |
| WAGENKNECHT, Jr., Theodore William | U. of Illinois | MD 1948 | Appleton, Minn. |
| YAMAMOTO, Joe | U. of Minnesota | MB 1948<br>MD 1949 | Veterans Adm. Hosp., Minneapolis, Minn. |

**Reciprocity Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| DOVENMUEHLE, Robert Henry | St. Louis U. | MD 1948 | Hastings State Hospital, Hastings, Minn. |
| EDWARDS, Charles Cornell | Colorado U. | MD 1948 | Department of Physiology, University of Minnesota, Minneapolis, Minn. |
| EVERS, Robert Neale | Washington U. | MD 1948 | 1044 Lowry Medical Arts Bldg., St. Paul |
| FASBENDER, Herman Thomas | St. Louis U. | MD 1948 | St. Raphael Hospital, Hastings, Minn. |
| HODGE, James Carlton | U. of Oklahoma | MD 1948 | Fairview Hospital, Minneapolis, Minn. |
| PARSHALL, Dale Bryan | U. of Michigan | MD 1944 | Veterans Adm. Hosp., Minneapolis, Minn. |
| POHL, Donald Edward | U. of Iowa | MD 1944 | Crookston, Minn. |
| SCHERBEL, Arthur Lawrence | U. of Wisconsin | MD 1944 | Mayo Clinic, Rochester, Minn. |
| SIEMON, Glenn | Stanford U. | MD 1946 | Mayo Clinic, Rochester, Minn. |

**National Board Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ALDRICH, Robert Anderson | Northwestern U. | MB 1943<br>MD 1944 | Mayo Clinic, Rochester, Minn. |
| FLIPSE, Martin Eugene | Harvard U. | MD 1943 | Mayo Clinic, Rochester, Minn. |
| FREEMAN, Gerald I. | U. of Iowa | MD 1946 | 1118 Lowry Medical Arts Bldg., St. Paul 2 |
| GOLDSTEIN, Norman Philip | Geo. Washington U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| GULLICKSON, Jr., Glenn | U. of Minnesota | MB 1944<br>MD 1945 | Div. of Physical Medicine, Univ. of Minn. Medical School, Minneapolis, Minn. |
| HOULE, Rollin John | St. Louis U. | MD 1948 | Sauk Rapids and East St. Cloud, Minn. |
| LONGLEY, Jay Rhodes | Geo. Washington U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| MASON, Edward Eaton | U. of Iowa | MD 1945 | University of Minnesota Hospitals, Minneapolis 14, Minn. |
| SEIBEL, David Ira | Rochester U. | MD 1945 | University of Minnesota Hospitals, Minneapolis 14, Minn. |
| SPEAR, Ivan MacDonald | McGill U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| VAN DUYN II, John | Johns Hopkins U. | MD 1931 | 5601 Grand Ave., Duluth, Minn. |

**PHYSICIANS LICENSED NOVEMBER 18, 1949**

**October 1949 Examination**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ADSON, Martin Alfred | U. of Minnesota | MB 1947<br>MD 1948 | Mayo Clinic, Rochester, Minn. |
| BEHRENS, Clayton Leo | Temple U. | MD 1943 | Ancker Hospital, St. Paul, Minn. |
| BERNARD, Donald P. | Marquette U. | MD 1948 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| CENTER, Sol | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| DANIELSON, Charles David | U. of Minnesota | MB 1945<br>MD 1946 | Veterans Adm. Hospital, Oklahoma City, Oklahoma |
| DAVIS, Windon Hewett | U. of Minnesota | MB 1948<br>MD 1949 | Mayo Clinic, Rochester, Minn. |
| DOUST, William Charles | Syracuse U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| ESSER, Robert Anthony | Northwestern U. | MB 1944<br>MD 1945 | Mayo Clinic, Rochester, Minn. |
| FERRIN, Allan Lowell | U. of Oregon | MD 1944 | Ancker Hospital, St. Paul, Minn. |
| GREENE, Jr., Wilson | Medical College of South Carolina | MD 1945 | Mayo Clinic, Rochester, Minn. |
| HAESLY, Warren W. | Northwestern U. | MB 1948<br>MD 1949 | Wykoff, Minn. |
| HARBAUGH, John T. | Indiana U. | MD 1946 | St. John's Hospital, St. Paul, Minn. |
| HERSHENHOUSE, Samuel Benjamin | U. of Illinois | MD 1944 | 5525 S. Paulina St., Chicago, Ill. |
| HINES, Jr., Carl R. | Northwestern U. | MB 1946<br>MD 1947 | Mayo Clinic, Rochester, Minn. |
| HUNTER, Murray Hazen | Marquette U. | MB 1949 | Ancker Hospital, St. Paul, Minn. |
| HUNTER, Robert Carl | U. of Maryland | MD 1947 | Mayo Clinic, Rochester, Minn. |
| IVY, John Henry | Northwestern U. | MB 1945<br>MD 1946 | Mayo Clinic, Rochester, Minn. |
| KATZ, Yale Joel | U. of Minnesota | MB 1949 | 3649 Stevens Ave., Minneapolis, Minn. |
| KORENGOLD, Marvin Curtis | U. of Minnesota | MB 1949 | Mpls. Gen. Hospital, Minneapolis 15, Minn. |
| MacCARTHY, Jr., John Donald | Johns Hopkins | MD 1946 | Department of Pathology, University of Minnesota, Minneapolis 14, Minn. |
| MACFARLANE, Edmond Blakely | U. of Toronto | MD 1947 | Mayo Clinic, Rochester, Minn. |
| Mac INNIS, Donald Francis | Marquette U. | MD 1936 | 5729 Longfellow Ave., Minneapolis, Minn. |
| MANAHAN, Gaylord Eugene | U. of Kansas | MD 1944 | Ancker Hospital, St. Paul 1, Minn. |
| McCLELLAN, Samuel Goodman | Harvard U. | MD 1944 | University of Minnesota Hospitals, Minneapolis, Minn. |
| McNEILL, John Alexander | U. of Manitoba | MD 1944 | Miller Hospital, St. Paul, Minn. |
| MERKERT, Jr., George L. | U. of Louisville | MD 1948 | Ancker Hospital, St. Paul 1, Minn. |
| NOBLE, John Henry | U. of Illinois | MD 1947 | Browns Valley, Minn. |
| ORWOLL, Harold Sylfest | U. of Chicago | MD 1946 | St. Peter, Minn. |
| OWEN, Howard Wayne | U. of Chicago | MD 1946 | Mayo Clinic, Rochester, Minn. |
| REITER, Ralph Alan | U. of Maryland | MD 1946 | Mayo Clinic, Rochester, Minn. |
| ROSIN, John David | U. of Maryland | MD 1942 | Mayo Clinic, Rochester, Minn. |

| *Name* | *School* | | *Address* |
|---|---|---|---|
| SCHUT, John William | Northwestern U. | MB 1946<br>MD 1947 | 2301 4th St. N., Minneapolis, Minn. |
| SMITH, William Thomas | U. of Kansas | MD 1946 | 1717 W. 31 St., Minneapolis, Minn. |
| TOWNSEND, William Albert | U. of Minnesota | MB 1946<br>MD 1947 | State Department of Health, University of Minnesota Campus, Minneapolis, Minn. |
| WAISBREN, Burton Armin | U. of Wisconsin | MD 1946 | 5537 Oliver St., Minneapolis, Minn. |
| ZENZ, Carl | Jefferson Medical College | MD 1949 | Asbury Hospital, Minneapolis, Minn. |

**Reciprocity Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| AGA, John Hesla | U. of Nebraska | MD 1948 | 217 Pleasant St., Mankato, Minn. |
| BEHLING, Frederick Louis | U. of Minnesota | MB 1946<br>MD 1947 | 906 Ninth Ave. So., Moorhead, Minn. |
| CASEY, Robert Elsworth | U. of Oklahoma | MD 1945 | Mayo Clinic, Rochester, Minn. |
| DAWSON, Jr., James Robertson | Vanderbilt U. | MD 1931 | 110 Anatomy Bldg., Univ. of Minnesota, Minneapolis 14, Minn. |
| DILLARD, Jr., Powell Garland | U. of Virginia | MD 1947 | Mayo Clinic, Rochester, Minn. |
| DONALD, Jr., Thomas Claude | Tulane U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| EDE, Mitchell | Tulane U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| FELDICK, Harley Glen | U. of Iowa | MD 1945 | Buffalo Center, Iowa |
| GOODLAD, James Homer | U. of Wisconsin | MD 1940 | Mayo Clinic, Rochester, Minn. |
| HARDWICKE, Henry Montfort | U. of Rochester | MD 1943 | 5601 Grand Ave., Duluth 7, Minn. |
| HOFFMAN, Murray Stanley | U. of Colarodo | MD 1947 | Mayo Clinic, Rochester, Minn. |
| HOOD, Leo Thomas | U. of Nebraska | MD 1946 | Mayo Clinic, Rochester, Minn. |
| JORDAN, Jr., George Lyman | U. of Pennsylvania | MD 1944 | Mayo Clinic, Rochester, Minn. |
| KENT, Jr., George Benjamin | U. of Colorado | MD 1947 | Mayo Clinic, Rochester, Minn. |
| MATHIESON, Don R. | U. of Minnesota | MB 1936<br>MD 1936 | Mayo Clinic, Rochester, Minn. |
| METCALF, Norman Barnard | U. of Nebraska | MD 1948 | Onamia, Minn. |
| NOBLE, James Hiatt | U. of California | MD 1946 | Mayo Clinic, Rochester, Minn. |
| O'SHAUGHNESSY, Edward Joseph | St. Louis U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| OSBORN, Donald Olin | U. of Nebraska | MD 1946 | 203 E. Broadway, Owatonna, Minn. |
| OSTLING, Burton Charles | U. of Michigan | MD 1948 | 215 W. 3rd St., Hastings, Minn. |
| POST, David Bellar | U. of Michigan | MD 1948 | Mayo Clinic, Rochester, Minn. |
| RETTER, Richard Henry | U. of Wisconsin | MD 1943 | Mayo Clinic, Rochester, Minn. |
| RIESCHL, Elizabeth Katherine | Marquette U. | MD 1947 | 815 North Ave., Jordan, Minn. |
| SCHOLZ, Donald August | Western Reserve | MD 1945 | Mayo Clinic, Rochester, Minn. |
| STAHLER, Paul Anthony | Marquette U. | MD 1947 | Jordan, Minn. |
| STERNS, Donald | Baylor U. | MD 1945 | Veterans Adm. Hosp., Minneapolis, Minn. |
| TRIPPLEHORN, Hugh Jason | U. of Pennsylvania | MD 1946 | 1009 Nicollet Ave., Minneapolis, Minn. |
| WEBER, Walter Edward | Stanford U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| WINELAND, Richard Eugene | U. of Michigan | MD 1946 | Mayo Clinic, Rochester, Minn. |

**National Board Candidates**

| *Name* | *School* | | *Address* |
|---|---|---|---|
| ARNESON, Charles Albert | Northwestern U. | MB 1933<br>MD 1934 | 714 Second St., Bismarck, No. Dak. |
| BECKER, Donald Leo | Colorado U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| CAREY, John Merwin | Harvard U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| de la VEGA, Frederick James | Creighton U. | MD 1946 | Veterans Adm. Hosp., Minneapolis, Minn. |
| EBERLEIN, Walter Rather | Harvard U. | MD 1945 | 1712 Brook Ave. S.E., Minneapolis, Minn. |
| FREYMANN, John Gordon | Harvard U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| GHORMLEY, Kenneth Owen | Harvard U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| GIFFORD, Jr., Ray Wallace | Ohio State U. | MD 1947 | Mayo Clinic, Rochester, Minn. |
| JEUB, Robert Phillip | Marquette U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| JOHNSON, Donald Arthur | Geo. Washington U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| KENNEDY, Timothy Vincent Aloysius | St. Louis U. | MD 1948 | Mayo Clinic, Rochester, Minn. |
| KOLB, Lawrence Coleman | Johns Hopkins U. | MD 1934 | Mayo Clinic, Rochester, Minn. |
| LONGO, Vincent Joseph | Yale U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| MYERS, Warren Powers Laird | Columbia U. | MD 1945 | Mayo Clinic, Rochester, Minn. |
| NELSON, Russell Marion | U. of Utah | MD 1947 | University of Minnesota Hospitals, Minneapolis, Minn. |
| OWEN, William Eugene | Columbia U. | MD 1942 | St. Ansgar, Iowa |
| QUIGLEY, Walter Paul | Marquette U. | MD 1946 | 309 LaBree Ave. N., Thief River Falls |
| SCANLON, Paul William | Syracuse U. | MD 1946 | Mayo Clinic, Rochester, Minn. |
| SCHWYZER, Marguerite | Yale U. | MD 1943 | % David McCloud, W2681 1st Nat. Bank Bldg., St. Paul 1, Minn. |
| SHOCKET, Everett | Long Island College | MD 1948 | Mayo Clinic, Rochester, Minn. |
| THALE, Harold Brian | U. of Minnesota | MB 1939<br>MD 1940 | 2115 Fifth Ave., Los Angeles, Calif. |
| WIERMAN, William Henry | U. of Colorado | MD 1945 | Mayo Clinic, Rochester, Minn. |
| WILLESS, Hersel F. | College of Medical Evangelists | MD 1938 | St. Barnabas Hospital, Minneapolis, Minn. |

# Minnesota Academy of Medicine

**Meeting of October 12, 1949**

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, October 12, 1949. Dinner was served at 7 o'clock, and the meeting was called to order at 8:20 p.m. by the President, Dr. J. A. Lepak.

There were fifty-five members and six guests present.

Dr. Lepak asked Dr. H. S. Diehl to introduce Dr. Leslie Banks, of Cambridge, England, who gave a short talk and answered questions on the present socialized medicine program in England.

Dr. Carl B. Drake read the following memorial to Dr. James Gilfillan.

### JAMES S. GILFILLAN
### 1869-1949

Dr. James S. Gilfillan was born April 15, 1869, the son of Judge and Mrs. James Gilfillan of Saint Paul. He attended public schools but was such a poor student he was sent to Shattuck Military Academy at Faribault. By the end of the year he was at the foot of his class, and instead of returning to Shattuck he obtained employment with Auerbach, Finch and Van Slyke, a jobbing house in Saint Paul, and later with the Northern Pacific Railway. After several years so employed, he went to Sauk Center where he spent two years with an uncle, Dr. James Montgomery McMasters, reading medicine and making calls with Dr. McMasters. Here it was that he became interested in the study of medicine. He matriculated at the University of Minnesota Medical School, graduating in 1897. He then took another year at the University of Pennsylvania Medical School, obtaining an M.D., degree from that institution in 1898. After interning at King's County Hospital in Brooklyn, he returned to practice in Saint Paul.

In 1906, Dr. Gilfillan married Hilda Benson. Having made himself proficient in German, he, accompanied by Mrs. Gilfillan, went to Vienna in 1907, to take postgraduate study in internal medicine. He characteristically refused to present letters of introduction to professors in Vienna but before the year was out had been put in charge of forty beds. His histories written in German script were so reliable that he was known as the Rock of Gibraltar. Upon his return to Saint Paul, he limited himself to internal medicine, having done some surgical practice before his trip to Vienna.

Although Dr. Gilfillan was anything but a student in his youth, he became an insatiable reader and fine student after he began the study of medicine. He became very proficient in German, French and Swedish—having learned the last of these languages from Mrs. Gilfillan. He was blessed with a remarkably retentive memory. His ability in the field of diagnosis was a source of envy of the many young doctors with whom he came in contact. His absolute honesty was universally recognized by his friends and acquaintances. No description of his character would be complete without mention of his keen sense of humor.

Dr. Gilfillan was on the University of Minnesota Medical School faculty from 1903 until his retirement in 1936, having been Associate Clinical Professor of Medicine from 1915 until 1936.

He was elected to membership in the Minnesota Academy of Medicine in 1905 and read his thesis February 1, 1905, entitled "Intermittent Gastric Hypersecretion," which was published in the *Saint Paul Medical Journal* (7:244, 1905). He served as president in 1931 and chose the title of "Compulsory Sickness Insurance" for his address as retiring president on January 13, 1932. This address was published in MINNESOTA MEDICINE in 1932 (15:295, 1932).

Dr. Gilfillan was a member of the Miller Clinic during its existence from 1921 to 1933. He maintained offices with Dr. A. R. Hall and Dr. George E. Senkler from 1933 until his retirement from active practice in 1938. A fractured hip sustained April 16, 1949, doubtlessly contributed to his death on June 13, 1949, at the age of eighty. He is survived by his widow, a son James, three grandchildren and four sisters.

C. B. DRAKE

A motion was carried that this memorial be spread on the records of the Academy and a copy sent to the family.

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The scientific program followed.

Dr. R. T. La Vake, Minneapolis, read a paper on "The Rationale of Blood Transfusion in the Toxemias." (See page 39.) Discussion by Dr. Albin Matson (by invitation) of Minneapolis.

Dr. John F. Briggs, of Saint Paul, then read his Inaugural Thesis on the subject "Pulmonary Mimicry in Bronchogenic Carcinoma."

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## THE PULMONARY MIMICRY IN BRONCHOGENIC CARCINOMA

**JOHN FRANCIS BRIGGS, M.D.**
**Clinical Associate Professor of Medicine, University of Minnesota**
**Saint Paul, Minnesota**

There has been a great increase in the incidence of bronchogenic carcinoma and there has been a great deal of controversy as to whether this increase is actual or apparent. The disease may occur at any age, but it is essentially a disease of men and is most frequent during the cancer decades. As far as can be determined, social level, economic level, season or climatic condition, and geographical location have nothing to do with the development of this particular disease. Ordinary occupations apparently have no effect upon the development of this condition but it appears more frequently in cobalt mine workers.

There is no pathognomonic sign of bronchogenic carcinoma. There is also no single symptom or physical

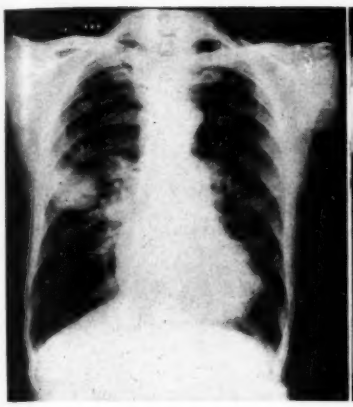


Fig. 1. Patient believed to be suffering from either pulmonary infarction or metastatic carcinoma. Ultimate diagnosis proved to be metastatic carcinoma.

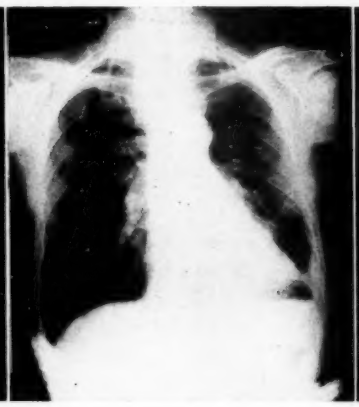


Fig. 2. Atelectasis at left base later proven to be the result of a bronchogenic carcinoma.

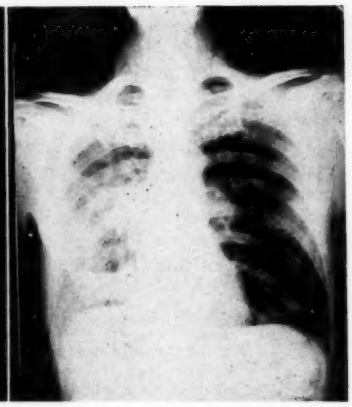


Fig. 3. Lung abscesses later proven to be bronchogenic carcinoma.

finding to suggest the disease. The inherent nature of the lesion is such that the disease can and will mimic any other type of intrathoracic disease. Ordinarily, the tumor begins within the bronchus, producing various degrees of obstruction to the bronchus. The signs and symptoms of the disease depend upon the extent of the obstruction and whether or not there is an associated infection. Bronchogenic carcinoma can mimic any other intrapulmonary condition. It is for this reason that the disease commonly becomes far advanced before it is recognized. Our duty as clinicians is to recognize the disease sufficiently early to permit surgical intervention.

The disease may occur in any part of the bronchus or in any portion of the lung. Occasionally, the tumor may arise out in the periphery of the lung. On microscopic examination, the tumors may be divided into squamous-cell carcinomas, adenocarcinomas, undifferentiated carcinomas, round-cell carcinomas and, occasionally, alveolar-cell carcinomas.

The chief means by which bronchogenic carcinoma can be diagnosed is through the routine taking of chest radiographs. Certain types of infiltration and shadows seen on the film will often lead one to suspect the presence of an underlying bronchogenic carcinoma. However, since this disease can mimic any other form of intrapulmonary lesion, it is also apparent that bronchogenic carcinoma may simulate the x-ray appearance of other types of intrathoracic disease. It is because of this power of mimicry that we must use all diagnostic aids possible to determine whether or not a given lesion is a primary lung malignancy. Occasionally, the malignancy may be associated with some other type of chronic pulmonary disease, such as tuberculosis. Since the disease has this power of imitation, it does present itself in a form suggesting other intrapulmonary disease. The diagnosis is usually made because of a high index of suspicion concerning its existence. It is well to remember that whenever a lung lesion fails to follow the course originally diagnosed, one should immediately suspect that it is a primary carcinoma.

Consultation with the roentgenologist will lead to the use of highly specialized types of x-ray technique such as bronchography, penetration films, and fluoroscopy. The roentgenologist has available many procedures that will aid him in establishing the diagnosis of a bronchogenic carcinoma. The ultimate diagnosis, however, depends upon the histological demonstration of a malignant lesion. This may be done through a biopsy of the tumor, a specimen having been obtained through bronchoscopic examination. Occasionally, tumor cells may be found in the sputum that the patient coughs up, or tumor cells may be found in the material aspirated through the bronchus. Pleural effusion, when present, may contain demonstrable malignant cells, but when these tests fail one may have to resort to open thoracotomy with inspection and biopsy of the pulmonary lesion. Once the diagnosis has been established, there is only one treatment, pneumonectomy.

### Summary

It has been emphasized that bronchogenic carcinoma is increasing and that the disease is extremely difficult to diagnose. It has been pointed out that the inherent pathological nature of this condition makes it possible for this disease to simulate any other known intrathoracic disease. The signs and symptoms presented by the patient are the signs and symptoms common to all forms of chest diseases. There is no single pathognomonic sign or symptom or x-ray shadow of primary bronchogenic carcinoma. The x-ray may suggest the diagnosis, but the ultimate diagnosis must be made by biopsy investigation or open thoractomy investigation of the suspected lesion. In some instances, the diagnosis may be established by finding the tumor cells in the exudates or aspirates of the patient. Once the disease has been established as a bronchogenic carcinoma, there is no other treatment but surgical intervention.

### Conclusion

Cases have been reviewed emphasizing the tremendous power of mimicry on the part of bronchogenic carcinoma. These cases also emphasize that one must constantly suspect that an individual with a chest condition may be harboring bronchogenic carcinoma, and that whenever the disease fails to follow the course ordinarily peculiar to the condition, then the clinician should suspect an underlying bronchogenic carcinoma and institute immediately those diagnostic procedures necessary to refine and resolve the diagnosis.

### Discussion

DR. S. MARX WHITE, Minneapolis: I would like to ask Dr. Briggs what experience he has had with the Papanicolaou method as applied to the examination of sputum in cases of this type.

DR. BRIGGS: Our experience has been too limited in the use of this method to answer this question.

QUESTION: What is the difference in ratio between male and female?

DR. BRIGGS: Sex ratio is about four to five males to one female.

DR. LEO G. RIGLER, University of Minnesota: Dr. Briggs, in his usual forthright, honest fashion, has given us an extraordinarily clear picture of the situation of carcinoma of the lung. This is about as lucid a presentation as I have ever heard in a short period of time. It might be interesting to observe that from a statistical standpoint in the Veterans Hospital in Minneapolis, where the patients are practically all male, carcinoma of the lung is seen almost twice as frequently as carcinoma of the stomach. I would disagree with Dr. Briggs on the question of whether there is a characteristic x-ray picture of carcinoma of the lung. There is such a characteristic picture, which, of course, as in most clinical procedures, is not pathognomonic but is about as good as one finds in tuberculosis, pneumonia or other conditions of that type. Actually, of course, we are more conservative in diagnosing carcinoma of the lung than we would be, let us say, in diagnosing pneumonia, since such a diagnosis means possibly an extirpation of the whole lung. For that reason, as Dr. Briggs has pointed out, one may wish to rely upon cytological study. Nevertheless, at some point a diagnosis must be made and a conclusion reached other than by the procedure of thoracotomy.

There is a situation in which the x-ray examination is extremely valuable in the diagnostic identification of carcinoma of the lung; for example, in the type of case in which the diagnosis of pneumonitis or unresolved pneumonia is made, a diagnosis which unfortunately frequently covers up an actual carcinoma of the lung. The demonstration of bronchial obstruction by bronchography may clarify the situation, since an obstruction of a bronchus of the second or third or fourth order is very unusual in an inflammatory process, but very common in carcinoma. In such cases, where the sputum studies are negative and the bronchoscope cannot reach the lesion, bronchography may give these final clues to establish the diagnosis.

The problem of differentiation, of course, is an extremely difficult one. This is particularly true of the peripheral lesions of the lung which we are seeing so much more frequently now than previously because of the many survey films. Fortunately, these are in a small minority of the cases of carcinoma.

The larger number arise in the root of the lung, and it is here where the x-ray examination could be of very great value. We have followed a large series of cases in which x-ray examination had been made at some time or other in the past. It is evident from this series that minimal evidences of disease in the lung may be present anywhere from six months to seven years prior to the onset of symptoms of carcinoma of the lung. Careful attention to small changes in the roentgenogram, particularly moderate enlargement of one root shadow, minor degrees of increased radiability in one lung or band-like shadows of atelectasis, might lead to a much earlier diagnosis than has heretofore been possible. These findings, I should emphasize, are those of pulmonary disease and are not necessarily indicative of carcinoma; but, once the suspicion of carcinoma is aroused as a result of a routine x-ray examination of the chest, further studies will usually lead to its identification. We shall simply have to give more attention to the minor changes which occur in the lung in the numerous routine films of the chest with which we are confronted. I am grateful to Dr. Briggs for his splendid paper.

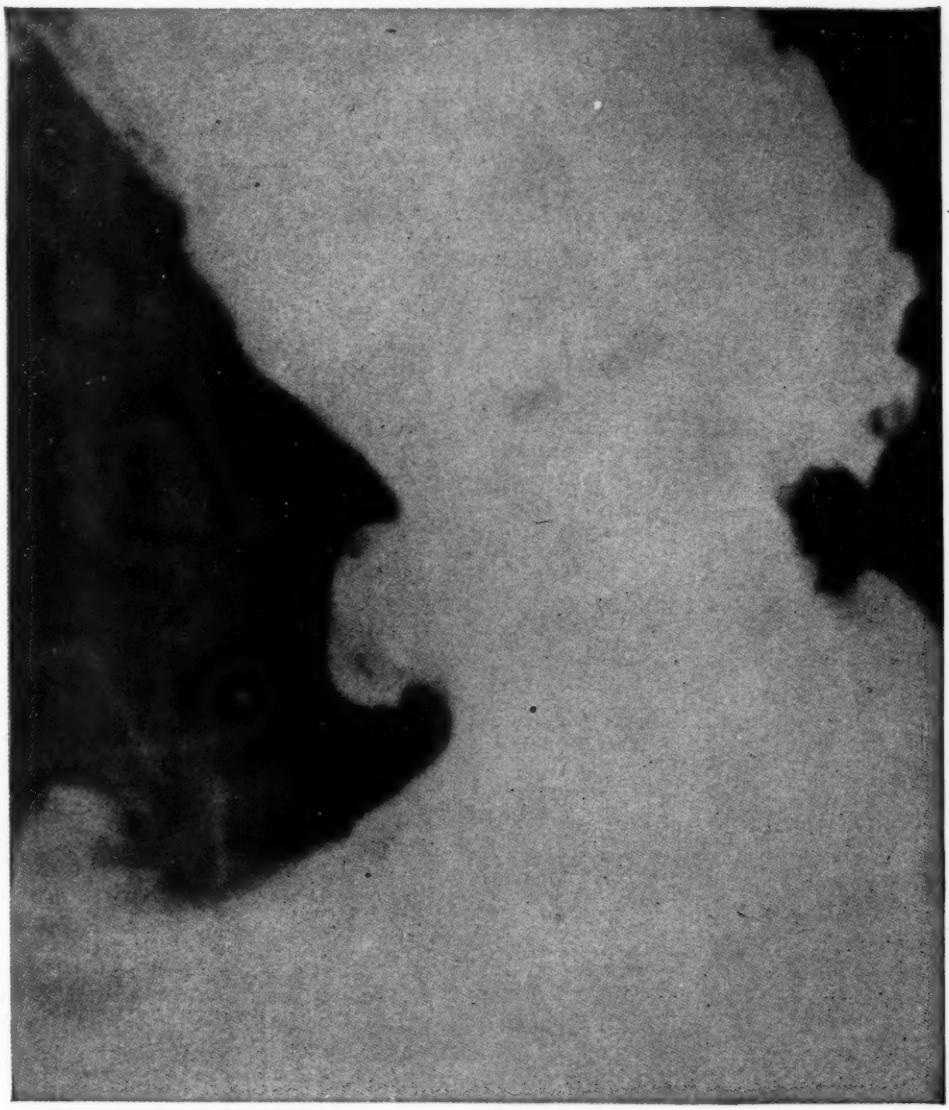
DR. F. F. CALLAHAN, Saint Paul: I am very glad to hear this paper by Dr. Briggs and also Dr. Rigler's discussion. I think up to 40 years of age that the incidence of carcinoma is about 5 to 1 in males. Very often the diagnosis is made by the detection of metastatic lesions, sometimes in the brain, and sometimes in other parts of the body before the lung lesion is discovered. Recently, I have had two cases that appeared to be lymphoblastomata of the mediastinum; both turned out to be carcinoma of the lung. We were looking for Hodgkin's disease or some other type of lymphoblastoma in these two cases. One case turned out to be a very rapidly spreading carcinoma of the bronchus, and the diagnosis was made by microscopic section of an enlarged cervical lymph node. The second case was diagnosed at autopsy. I think, in making sections from lesions one finds in the bronchus that differentiation of cells is extremely important.

If carcinoma of the bronchus is to be treated surgically, the growth must be far enough from the corina, or bifurcation of the trachea, to allow good closure of the bronchial stump. For a number of years, the Mayo Clinic has been grading the cells of tumor tissue removed from the bronchus into types 1-2-3-4. I understand that surgical treatment of types 1 and 2 has been quite encouraging, and disappointing in types 3 and 4.

DR. THOMAS J. KINSELLA, Minneapolis: I wish to congratulate Dr. Briggs, not only for bringing this subject to our attention, but for the most sensible way in which he has presented it. We shall never diagnose primary bronchiogenic carcinoma at an early stage unless we think about it constantly and look for it in every patient who presents a lung lesion. This tumor is probably the most treacherous of all those with which we must contend, for it may simulate pneumonia, tuberculosis, bronchiectasis, lung abscess, virus pneumonia or almost any other known lung lesion. The terms "virus pneumonia" and "unresolved pneumonia" are dangerous if used as final diagnoses. If they are accepted as diagnostic problems, then the use of such terms may be justifiable.

The figures quoted from the United States Veterans Bureau Facility at Fort Snelling on the relative predominance of bronchiogenic carcinoma over carcinoma of the stomach at that facility must not be taken at face value, for this hospital is an official chest surgery center and receives the complicated chest cases from several states, whereas, the gastrointestinal cases come only from local trritory. Consequently, an erroneous impression may be obtained, if total figures alone are

*(Continued on Page 86)*



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**SEARLE** RESEARCH IN THE SERVICE OF MEDICINE

*(Continued from Page 84)*

considered. I can distinctly remember that not more than four or five years ago at this same hospital where as Consultant in Chest Surgery reviewing many chest conditions, my diagnoses of primary bronchiogenic carcinoma were met with the statement that they just did not see carcinoma of the lung among their patients. The truth of the matter was that they saw these patients but did not recognize the condition as bronchiogenic carcinoma.

I feel that one should forget about doing routine sputum examinations for carcinoma cells in an attempt to discover primary bronchiogenic carcinoma, because the technique is too time-consuming and detailed to be used as a routine diagnostic procedure. Studies of bronchial secretions aspirated directly from localized areas of the lung are much more valuable but only if the examinations are made by trained personnel experienced in this work. There are pitfalls which may lead to an erroneous diagnosis. Careful bronchoscopy, particularly using the right angle and the foroblique telescopes through the bronchoscope, are valuable and may enable one to visualize many tumors of the upper lobe bronchi beyond the reach of the direct bronchoscope. Direct biopsy from a visible tumor is of much greater value than cell studies, but the latter are of extreme value where biopsy cannot be obtained. The bronchogram is very important, but it must be carefully done and properly interpreted or it loses much of its value. When confronted by an obscure lung lesion, one should exhaust all of the diagnostic means at hand including x-ray studies, bronchoscopy, bronchography, a study of aspirated secretions, as well as a number of studies for tubercle bacilli by smear technique in an attempt to establish a definite diagnosis. If a diagnosis cannot be reached by these studies and if primary bronchiogenic carcinoma is under serious consideration, one should not wait for negative culture reports for tubercle bacilli for these tests are too time-consuming. I feel rather that one should resort to exploratory thoracotomy with excision of the local lesion and immediate pathologic examination. Primary bronchiogenic carcinoma moves too rapidly to justify a long delay for special diagnostic studies. The big criticism in the use of mass x-ray surveys for the discovery of primary bronchiogenic carcinoma lies in the facts that, as ordinarily carried out, too much time is wasted in ruling out tuberculosis and such time is extremely valuable in the treatment of bronchiogenic carcinoma. I have yet to see a resectable, curable, primary bronchiogenic carcinoma from the recent Minneapolis survey. In nearly 80 per cent of the patients whom we see with primary bronchiogenic carcinoma, the disease is too far advanced to justify even an exploratory thoracotomy. While occasionally, one may derive considerable benefit from palliative resection in primary bronchiogenic carcinoma, taken by and large the amount of palliation obtained is not too great. This tumor is usually a rapidly growing type which metastasizes early and widely. Late results from treatment are somewhat similar to those of carcinoma of the stomach with considerably less than 10 per cent five-year survivals. Earlier diagnosis and earlier treatment may improve these figures.

So far as localized nodules in the lung are concerned, I believe that there is no accurate means of diagnosing these by x-ray or other studies except by local excision and immediate pathological examination. Prompt investigation of these isolated nodules may bring about recognition of a few cases of carcinoma in an early stage.

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The meeting was adjourned.

A. E. CARDLE, M.D., *Secretary*

## HEMOCHROMATOSIS

*(Continued from Page 56)*

of portal circulation. The autopsy showed a very extensive anastamosis between the omentum and the peritoneum of the abdominal wall, extending from the crest of the ilium up to the diaphragm. The adhesions were very dense and firm over the liver. This shunting of the portal circulation possibly accounts for the man's fairly good health and ability to carry on from 1934 until his death.

### References


1. Bearwood, J. T., and Roase, G. P.: Hemochromatosis. Clinics, 3:251-260, (Aug.) 1944.
2. Beck, J. E.: Hemochromotosis. Backus' Gastroenterology, 3:334-326, 1946.
3. Butt, H. R., and Wilder, R. H.: Hemochemotosis. Arch. Path., 26:262, 1934.
4. Butt, H. R., and Wilder, R. M.: Hemochromatosis. Proc. Staff Meet. Mayo Clinic, 12:625-627, (Oct. 6) 1947.
5. Chesner, C.: Hemochromatosis. J. Lab. & Clin. Med., 31: 1029-1036, (Sept.) 1946.
6. Fishback, H. R.: Determination of iron in the skin in hemochromatosis. J. Lab. & Clin. Med., 25:98-99, (Oct.) 1939.
7. Humphrey, A. A., et al.: Hemochromatosis. Arch. Dermatol. & Syphilol., 45:1128-1132, (June) 1942.
8. Sheldon, J. H.: Hemochromatosis. Lancet, 2:1031, 1934.


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## HOSPITAL OCCUPANCY RATE LEVELING

*(Continued from Page 75)*

of supplies, which will mount due to absorption of increased labor costs; and food, which will continue at present high price levels due to the federal price supports which show no signs of impermanence.

He adds, further:

"The past decade has been a period of phenomenal advance in medical science which has greatly increased the scope of hospital care and necessitated additional facilities. The possibilities of nuclear medicine and new diagnostic services indicate that the frontiers of medicine's knowledge and effectiveness will further recede. The hospital, having already been established as the health center of its community, must provide the facilities and the technical assistance to make these advances available to the sick. Additional costs again will be involved if we are to fulfill our mission of benefiting mankind in the continual battle against the misfortunes of ill health."

He advised hospital administrators to practice every technique of good management to prevent the public from assuming a disproportionate share of these rising costs, warning that adverse public opinion could damage the entire voluntary hospital system.

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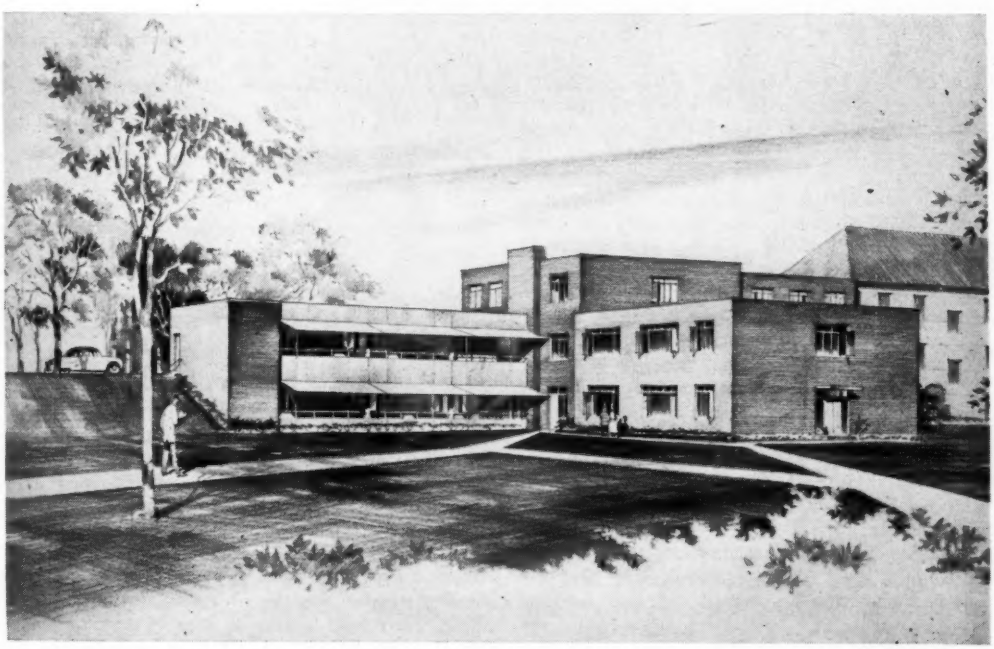

*Neurologic Unit of Glenwood Hills Hospitals to be ready for service about January 15.*

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# ✦ Reports and Announcements ✦

## THE WASHINGTON AMA MEETING

The House of Delegates of the AMA, at its meeting at Washington in December, voted to change the By-Laws by requiring yearly membership dues of not over $25.00. This year will be the first in the history of the Association that members will have ever paid any dues. The $25.00 paid last year was in the nature of a voluntary assessment to meet an emergency and was paid by 80 per cent of the membership. By December 1, 1949, it netted $2,250,000 of which $2,050,000 had been budgeted and approved for the National Education Campaign of the AMA. The emergency, though relieved, is not over. If the medical profession is going to prevent the adoption of compulsory tax-supported government medical care, educational activities will have to be continued. The use of the funds derived from dues will not be limited to the educational campaign, for the AMA has need for the wherewithal to support its everexpanding activities.

The 1950 AMA dues are payable now at the headquarters of the Minnesota State Medical Association, 496 Lowry Medical Arts Building, St. Paul 2. Members who pay county and state association dues will maintain their memberships in county and state organizations. The payment of the additional $25.00 is required for AMA membership and does not include subscription to *The Journal*. That requires an additional $12.00, making $37.00 in all. The rather anomalous situation exists whereby a physician may be a member of a component county and state association but not of the national association.

Announcement was made at the AMA convention of the retirement as of December 1, 1949, of Dr. Morris Fishbein as editor. Dr. Austin Smith, secretary of the Council of Pharmacy and Chemistry of the AMA for a number of years, became editor of *The Journal* as of December 1, 1949. Dr. Robert T. Stormant, medical director of the Federal Food and Drug Administration of the Federal Government since 1947, succeeds Dr. Smith as secretary. Dr. W. W. Bauer, director of the Bureau of Health Education of the AMA, becomes editor of *Hygeia*. Dr. Richard J. Plunkett, who has been on the editorial staff of *The Journal* since 1947, assumes the managing editorship of the nine scientific journals devoted to the specialties published by the American Medical Association.

## CONGRESS ON OBSTETRICS AND GYNECOLOGY

The International and Fourth American Congress on Obstetrics and Gynecology will be held on May 14 to 19 at Hotel Statler in New York. Mornings will be devoted to general sessions, and afternoons to the program of the medical section of the Congress. Separate afternoon sessions are planned for nurses, public health persons, and hospital administrators. A special program on the economic aspects of obstetrics and gynecology will also be presented. Information as to registration, housing data and program details can be obtained by writing to Dr. Fred L. Adair, 161 East Erie Street, Chicago 11, Illinois.

## INTERNATIONAL COLLEGE OF SURGEONS UNITED STATES CHAPTER

The following Minnesota surgeons were made Fellows and Associate Fellows in the United States Chapter, International College of Surgeons, at the fourteenth annual assembly of the group in Atlantic City, November 7 through 11, 1949: *Certified Fellows,* Dr. Harold G. Benjamin, Minneapolis, and Dr. John D. Brown Galloway, Minneapolis. *Associate,* Dr. Benjamin J. Palen, Minneapolis. *Advanced to Rank of Associate,* Dr. John A. Williams, Saint Paul.

In addition, the following were named Honorary Fellows in the International Chapters of the International College of Surgeons: Dr. Alfred W. Adson, Dr. Louis Arther Buie, Dr. Byrl Raymond Kirklin, Dr. Harold I. Lillie, Dr. J. Grafton Love, Dr. John Silas Lundy, and Dr. Gershom J. Thompson, all of Rochester.

## AMERICAN ACADEMY OF GENERAL PRACTICE

The American Academy of General Practice will hold its assembly at St. Louis February 20 to 23. Twenty-two of the country's leading clinicians will deliver papers at the Kiel Auditorium during the session. Hotel reservations may be made by writing to the Hotel Reservation Bureau, A. A. G. P., 910 Locust Street, Room 304, St. Louis 1, Missouri.

## CONTINUATION COURSE IN CANCER

A continuation course in cancer for physicians will be presented by the University of Minnesota February 16 to 18. The course is sponsored by the Minnesota State Medical Association, the Minnesota Division of the American Cancer Society, and the Cancer Control Division of the Minnesota Department of Health.

Dr. Henry K. Beecher, professor of anesthesiology at Harvard University Medical School, will be the visiting faculty member for the course and will also deliver the E. Starr Judd Lecture in Surgery on the evening of February 16.

## BLUE EARTH VALLEY SOCIETY

Members of the Blue Earth Valley Medical Society, covering Faribault and Martin Counties, elected Dr. Lewis Hanson of Frost president of the organization at the annual meeting in Blue Earth on November 17. Dr. Hanson succeeds Dr. Robert Hunt of Fairmont in the post.

Other officers elected include Dr. R. O. Burmeister, Welcome, vice president; Dr. Hubert Boysen, Madelia,

*(Continued on Page 90)*

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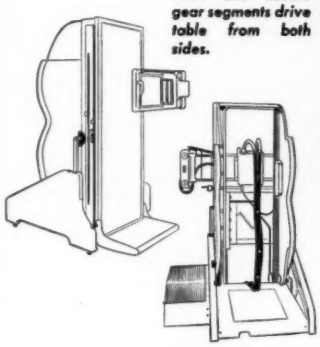

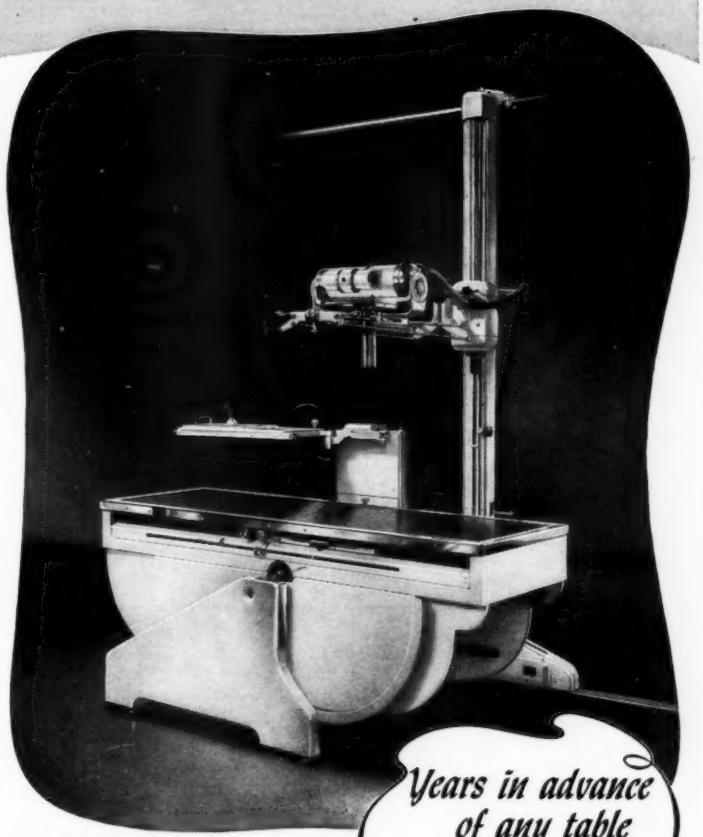

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### BLUE EARTH VALLEY SOCIETY

*(Continued from Page 88)*

secretary-treasurer; Dr. J. J. Heimark, Fairmont, delegate, and Dr. G. W. Drexler, Blue Earth, alternate delegate.

Principal speaker at the meeting was Dr. R. M. Shick, Rochester, who spoke on "The Practical Aspects of Anticoagulant Therapy."

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### GOODHUE COUNTY SOCIETY

Election of officers highlighted a meeting of the Goodhue County Medical Society in Red Wing on December 1. Named as president was Dr. W. R. Miller of Red Wing. Other officers elected were Dr. O. E. Larson, Zumbrota, vice president; Dr. G. F. Hartnagel, secretary-treasurer; Dr. R. F. Hedin, delegate, and Dr. G. M. B. Hawley, alternate delegate, all of Red Wing. Society members at the meeting discussed the mass chest x-ray survey to be conducted in Goodhue County.

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### RAMSEY COUNTY SOCIETY

Dr. F. G. Hedenstrom was named president-elect of the Ramsey County Medical Society at a meeting in Saint Paul on November 28. He will take office in 1951. Serving as president of the group during 1950 is Dr. Warner Ogden.

### SOUTHWESTERN MINNESOTA MEDICAL ASSOCIATION

At the annual fall meeting of the Southwestern Minnesota Medical Association, held in Worthington, Dr. Gerrit Beckering of Edgerton was elected president. Dr. Peter J. Pankratz, Mountain Lake, was named vice president, and Dr. O. M. Heiberg, Worthington, secretary-treasurer.

Dr. Beckering and Dr. E. W. Arnold, Adrian, were elected delegates to the Minnesota State Medical Association, with Dr. C. L. Sherman, Luverne, and Dr. W. B. Wells, Jackson, as alternates.

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### WRIGHT COUNTY SOCIETY

At a meeting of the Wright County Medical Society in Buffalo late in November, Dr. V. T. Ryding of Howard Lake was elected president. Other officers elected at the meeting include Dr. W. E. Hall, Maple Lake, vice president, and Dr. Theodore Catlin, Buffalo, secretary.

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As tuberculosis, in some aspect, is the concern of every practitioner in whatever specialty, so its teaching is the responsibility of the entire medical faculty. The phthisiologist's concern is with the segment of the problem which lies within the field of internal medicine. As the thoracic surgeon is primarily a surgeon, so the phthisiologist is primarily an internist. The more he can participate with other internists in joint clinical research and teachng enterprises the better will be the education of the students who are under their mutual guidance. CARL MUSCHENHEIM, M.D., *Am. Rev. Tuberc.*, July, 1949.


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# Woman's Auxiliary

## AUXILIARY LISTS BEST SEAL TALKS

Winners of the 1949 Christmas Seal high school radio project, sponsored by the Minnesota Public Health Association and the Woman's Auxiliary to the Minnesota State Medical Association, have been announced. They include:

### High School Winners

*First.*—Shelly Budlong, Washington High School, Brainerd.

*Second.*—Janice Kinter, Greenway High School, Coleraine; Celestine Ahles, Cathedral High School, St. Cloud; Ruth Weber, St. Francis High School, Little Falls; Jeanne Fortier, Little Falls High School, Little Falls; Mary Jean Bohlinger, Mount St. Benedict Academy, Crookston; Robert Hanson, Rochester High School, Rochester; Joyce Lindell, Stillwater High School, Stillwater.

### Junior High School Winners

*First.*—Barbara Sitzmann, Visitation Convent, St. Paul.

*Second.*—Anne Thompson, Laboratory School, Bemidji State Teachers College.

### Honorable Mention

*Senior Division.*—Lorraine Hanson, Washington High School, Brainerd; John Marty, Meadowland High School, Meadowlands; Rosemary Mahoney, Good Counsel Academy, Mankato; Bill Hempel, Elbow Lake High School, Elbow Lake; Margaret Kramin, Danube High School, Elbow Lake; Elizabeth Gockowski, St. Agnes High School, St. Paul; Kathleen Lingle, White Bear High School, White Bear; Carol Arch, Central High School, Crookston; Roger L. Nelson, Rochester High School, Rochester; Donna Boelter, Blooming Prairie High School, Blooming Prairie.

*Junior Division.*—Eddie Roos, Central Junior High School, St. Cloud; Arlene Reed, Grand Rapids Junior High School, Grand Rapids; Barbara Bossus, Franklin Junior High School, Brainerd; Barbara Latterell, St. Francis High School, Little Falls; Marilyn Peterson, Central Junior High School, Rochester; Marlene Ebinger, Crosby High School, Crosby; Tom Uldrich, Little Falls Junior High School, Little Falls; Irene Tomhave, Washington Junior High School, Fergus Falls; Sally Clare, Stillwater Junior High School, Stillwater.

## WORTHINGTON RADIO SERIES POPULAR

**Mrs. O. M. Heiberg***

Now going into its third year, "Your Health Hour," a series of radio programs on health, has proved very popular with the KOWA, Worthington, listening audience.

The broadcasts, sponsored by the Woman's Auxiliary of the Southwestern Medical Society, are heard every Sunday afternoon at 2 p.m. Transcriptions supplied by the American Medical Association are used alternately with live broadcasts, presented by laymen and professional people from a six-county area.

During December, radio listeners who turned to Station KOWA learned about rheumatic fever, dodging contagious diseases, tuberculosis, good teeth for children, whooping cough.

The idea for the program developed from Health Days conducted in Pipestone and Nobles counties. Interest in the series is maintained by spot announcements calling the listeners' attention to the broadcasts. Doctors in the six counties receive a monthly card listing the topics to be covered in the broadcasts for that month. All newspapers in the six counties carry program announcements.

That the program creates general interest in health problems is indicated by requests for copies of scripts or for literature mentioned on the program.

*Radio Chairman of the Woman's Auxiliary of the Southwestern Minnesota Medical Society.

## MRS. BOIES ON NUTRITION COUNCIL

Mrs. H. E. Bakkila, president of the State Auxiliary, has appointed Mrs. L. R. Boies, Hopkins, to represent the Auxiliary on the Minnesota State Nutrition Council. The appointment was made in response to an invitation issued by Irene Netz, chairman of the organization.

Mrs. Boies is a member of the Hennepin County Auxiliary.

## RANGE BRANCH ADDS NEW MEMBERS

**Mrs. G. Erskine**

The Range Branch of the St. Louis County Medical Auxiliary had a very successful membership tea, October 27, at the home of Mrs. L. W. Johnsrud, Hibbing. Many new members were enrolled.

* * *

Mrs. J. O. Meyer has left Grand Rapids for foreign fields. Dr. Meyer rejoined the army, with the rank of major, and they are now in Milwaukee, awaiting orders for Germany or Austria. They expect to sail some time in February. Mrs. Meyer was very active on the Grant Aid Committee and will be greatly missed.

* * *

Mrs. R. L. Bowen of Hibbing has had to curtail her activities this year due to a very serious operation.

* * *

On account of road conditions, the Range Branch will not meet again until March.

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# In Memoriam

### JOSEPH OWEN McKEON

Dr. Joseph O. McKeon of Montgomery died suddenly in San Angelo, Texas, in November, 1949. He had been civilian medical officer at Goodfellow Army Air Base since June.

Dr. McKeon was born in Montgomery, Minnesota, February 23, 1892. He obtained his M.D. degree at the University of Minnesota in 1915 and interned at the Minneapolis General Hospital. He served in the Army from 1917 to 1919 with the commission of captain.

He was a member of Phi Rho Sigma medical fraternity and the Rice County Medical Society, the Minnesota State and American Medical Associations.

Surviving are his wife and three children, James and Mary of Minneapolis and Mrs. Robert Maxeiner, Jr., of Rochester, Minnesota, and his mother, Mrs. James McKeon, of Minneapolis.

### THAYER C. DAVIS

Dr. Thayer C. Davis, a practicing physician at Wadena, Minnesota, since 1922, died November 18, 1949. He was sixty-two years of age.

Dr. Davis was born at Howard Lake, Minnesota, May 5, 1887. He received the degrees of M.B. and M.D. from the University of Minnesota Medical School in 1913 and interned at the City and County Hospital, Saint Paul. He was a member of the Alpha Omega Alpha society at the University.

He practiced at Warroad from 1914 to 1918 and at Glenwood from 1918 to 1922, before locating in Wadena.

Dr. Davis was president of the First National Bank of Wadena. He was a member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations.

Surviving are his wife; two sons, Dr. Thayer Davis, Jr. of Beaver Dam, Wisconsin, and Robert of Sheyenne, North Dakota, and a brother, Dr. Thomas Davis, Wadena, with whom he was associated in the practice of medicine.

### GEORGE R. DUNN

Dr. George R. Dunn, a prominent surgeon of Minneapolis, died on December 11, 1949, at the age of sixty-one.

Dr. Dunn was born at Princeton, Minnesota, December 24, 1887. He obtained a Ph.B. degree from Hamline


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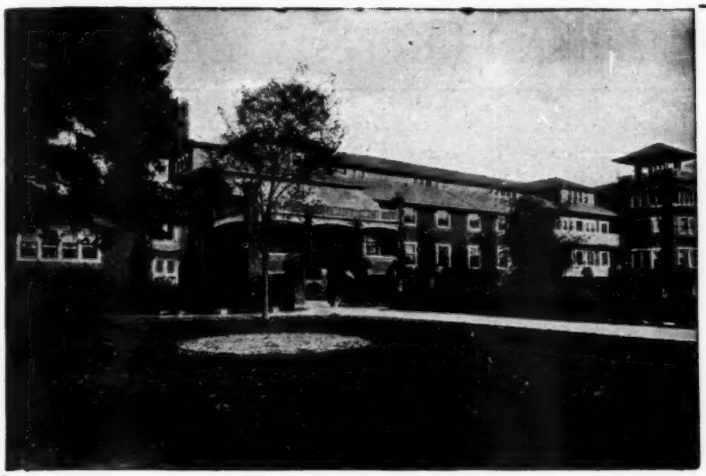

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University in 1910 and his M.D. from Johns Hopkins Medical School in 1914. He interned at the Johns Hopkins Hospital for a year.

He was a fellow of the American College of Surgeons, Assistant Professor of Surgery at the University of Minnesota Medical School, and was on the staff of Northwestern Hospital in Minneapolis. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, the Minnesota Neurological Society and the Minneapolis Surgical Society.

Surviving are his widow, a son and two daughters. His sister, Grace A. Dunn, is editor and publisher of the *Princeton Union* at Princeton, Minnesota.

### LEONARD HARRIMAN

Dr. Leonard Harriman of Howard Lake, Minnesota, passed away November 25, 1949.

Dr. Harriman was born in Parishville, New York, on November 3, 1873. Later he moved to Wisconsin and at the age of twenty-four joined the Army and served in Puerto Rico during the Spanish-American war.

He received his M.D. degree at the University of Illinois medical school in 1909 and took two years of internship at St. Mary of Nazareth Hospital in Chicago,

He practiced at Lake Mills, Wisconsin, from 1911 to 1914, when he moved to Howard Lake, where he was local surgeon for the Great Northern Railway in addition to carrying on a general practice.

Dr. Harriman had been local health officer since 1918, president of the school board for many years, president of the Security State Bank, and was active in many community projects.

He was a member of the Wright County Medical Society and the Minnesota State and American Medical Associations.

Dr. Harriman is survived by his wife, the former Anna Bringman.

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Health education is the application of measures to induce experiences which favorably influence knowledge, attitudes and actions for the prevention of disease and the perfection of health of the individual members of society. IRA V. HISCOCK, *Pub. Health News*, Feb., 1949.

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### AN APPRAISAL OF MAJOR SURGERY IN A SMALL HOSPITAL

*(Continued from Page 35)*

#### References

1. Anderson, D. P.: Fate of the major surgical case in the small hospital. Minnesota Med., 25:720, (Sept.) 1942.
2. Ladd, William E., and Gross, Robert E.: Abdominal Surgery in Infancy and Childhood. Philadelphia: W. B. Saunders Co., 1941.
3. Lahey, Frank H.: Common and hepatic duct stones. Am. J. Surg., 40:209, (April) 1938.
4. Tanner, Frank H., and Cullen, George: Pathological aspects of death following major surgery. Surg., Gynec. & Obst., 84:446, (Oct.) 1947.

# Of General Interest

**All Minnesota physicians** are invited to send to MINNESOTA MEDICINE items "of general interest" concerning themselves or their colleagues. To ensure accuracy and completeness, it is suggested that items submitted contain the answers to the age-old newspaper questions: who? what? where? when? and (in some cases) why? Only the facts are needed, since items can be edited or rewritten for consistency of style.

* * *

According to a communication from Dr. B. A. Waisbren and Dr. Jean S. Hueckel in *The Journal of the American Medical Association* of November 26, 1949, the administration of aluminum hydroxide gel with **aureomycin** in order to reduce epigastric distress results in a lowering of serum levels of aureomycin and is therefore contraindicated.

* * *

**Dr. Manley F. Juergens,** formerly of Thief River Falls, became associated in practice with Dr. J. W. Stuhr and Dr. J. E. Jensen in Stillwater on December 1.

The son of Dr. H. M. Juergens of Belle Plaine, Dr. Manley Juergens was graduated from the University of Minnesota Medical School in 1945. After interning at Minneapolis General Hospital, he entered military service and served in the Army Air Corps. Following his separation from the Army, he took postgraduate training at the University of Minnesota, then joined a clinic in Thief River Falls, where he practiced during the past year.

* * *

"The Psychiatric Aspects of Alcoholism" was the title of a talk given by **Dr. Gordon R. Kamman,** Saint Paul, at a meeting of the Polk County (Wisconsin) Medical Society at the Hazelden Foundation, Center City, on November 17. The Hazelden Foundation is a private institution, located near Center City, for the rehabilitation of male alcoholics after they have been discharged from medical care.

* * *

**Dr. Robert Davis Mooney** has opened an office at Highland Medical Center, 670 South Cleveland Avenue, Saint Paul, for the practice of internal medicine.

* * *

Minnesota has embarked upon an extensive five-year program of state-wide **professional postgraduate education.** Physicians, dentists, nurses and pharmacists are being invited to a series of district seminars devoted to heart disease, cancer and psychosomatic medicine.

Each seminar consists of eight consecutive weekly meetings, with two lecturers usually appearing for one hour each. There are six lectures on heart disease, six on cancer and four on mental health.

The first of the seven seminars scheduled for the 1949-1950 season was held at Bemidji, with an average attendance of twenty-five physicians and thirty nurses at each meeting. The second seminar, held in Fergus Falls, attracted an average of thirty-five physicians, fifty nurses and thirty dentists for each meeting. Interest in the seminars has been so favorable that several Minnesota communities have voluntarily requested that they be considered for future sites.

The programs are planned and organized by the Minnesota Department of Health with the assistance of the University of Minnesota Schools of Medicine, Dentistry, Nursing and Pharmacy, the Minnesota State Medical Association, the Minnesota Nurses Association and the Minnesota State Pharmaceutical Association.

* * *

**Dr. David A. Sher,** a pediatrician associated with the Lenont-Peterson Clinic in Virginia, recently received a five-year appointment to the newly created Housing and Rehabilitation Commission of the City of Virginia. At the organization meeting, Dr. Sher was elected chairman of the commission.

* * *

**Dr. B. O. Mork, Jr.,** Worthington, who is now studying for an advanced degree in public health at the University of Minnesota, has been replaced as director of District 5 of the Minnesota Department of Health by Dr. Helen B. Wolff of Worthington. Dr. Wolff received her medical and public health training in California. Her husband is a businessman in Worthington.

* * *

**Dr. W. W. Haesly,** a former Winona resident, opened offices for the practice of medicine in Wykoff in the middle of November. A graduate of the Northwestern University Medical School in 1948, Dr. Haesly served his internship at St. Luke's Hospital in Chicago.

* * *

At a health clinic conducted in Red Wing on November 14, more than 125 members of the high school junior and senior classes received vaccinations and Schick tests. In charge of the clinic were **Dr. George M. B. Hawley** and **Dr. Richard B. Graves,** both of Red Wing.

* * *

**Dr. Hanns C. Schwyzer** has opened an office at 2069 Ford Parkway, Saint Paul, for the practice of general surgery. Dr. Schwyzer formerly was associated with Dr. Martin Nordland in Minneapolis.

* * *

The first issue of a **Mayo Clinic newspaper,** aimed to promote a more neighborly relationship between the clinic's medical and business staffs, was published on November 26. In an article on the aims of the new publication, the editor, Bill Holmes, a former newspaper reporter, stated that in the early days of the Mayo Clinic, when both business and

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medical staffs were small, "inter-department contact was a simple, neighborly process." Due to the "tremendous growth of the organization," he continued, the "amiable open-an-adjoining-door relationship" disappeared. The newspaper, it was hoped, would help to restore that neighborly feeling.

Tabloid size, 12 by 17 inches, the first issue carried four pages of feature stories and reports about clinic personnel. It was distributed to more than 2,500 "subscribers." Plans called for monthly publication at first, switching later to a two-week publication schedule. In the meantime a contest to select a name for the paper was to be held.

Among those in attendance at the meeting of the United States Chapter of the International College of Surgeons in Atlantic City early in November was **Dr. T. A. Lowe,** South Saint Paul.

* * *

**Dr. Charles A. Haberle,** formerly of Thief River Falls, has joined the staff of the Arrowhead Clinic in Duluth. A graduate of the University of Minnesota Medical School, Dr. Haberle received his postgraduate training at the University Hospitals. For the past three years he has been associated with a clinic in Thief River Falls.

At the annual dinner meeting of the Minnesota Chapter of the **American Medical Technologists** in Minneapolis on December 3, the national society of the AMT announced the reappointment of Jack O. Kirkham for a third year as its state representative. Chester Neese, Fergus Falls, was elected president of the state chapter.

* * *

**Dr. Frederick L. Schade,** Worthington, was one of the Minnesota physicians who attended a meeting of the Central Association of Obstetricians and Gynecologists in Oklahoma City early in November.

* * *

It was announced in November that **Dr. Fred Behling** of Moorhead planned to establish residence in Oklee on December 1 and that he had accepted a proposal by the board of the Oklee Community Hospital Association to establish a practice in a medical clinic then being constructed in the city. A graduate of the University of Minnesota, Dr. Behling has been on the staff of a Denver general hospital for the past year.

* * *

On December 1, **Dr. Brand A. Leopard** closed his office in Albert Lea for an indefinite period of time. The reason announced for the closing was ill health.

* * *

**Dr. Thomas H. Seldon,** of the section on anesthesiology at the Mayo Clinic, was installed as president of the American Association of Blood Banks at a meeting of the organization in Seattle on November 5.

* * *

As principal speaker at a meeting of the Saint Paul Business and Professional Women's Association on November 10, **Dr. Harvey O. Beek,** Saint Paul, discussed psychosomatic medicine and emotional disorders.

* * *

The Duluth Chamber of Commerce opened its 1949-1950 **industrial safety school** series on December 7 with the first of four monthly sessions on industrial safety work. The opening session was devoted to medical problems, and most of the talks were given by members of the St. Louis County Medical Society.

Dr. Frederick J. Kottke, of the University of Minnesota Division of Physical Medicine, speaking at the general meeting, discussed "The Importance of Rehabilitation Therapy for the Injured Worker." Speakers at various section meetings of the safety school were Dr. G. J. Strewler, Dr. J. J. Coll, Dr. M. G. Fredericks, Dr. R. L. Nelson, Dr. John H. Peterson, Dr. D. V. Luth, and Dr. E. C. Strauss, all of Duluth, and Dr. P. B. Monroe, Cloquet.

* * *

**Dr. Wayne C. Rydburg** of Brooten was honored at a dinner at the Glenwood Community Hospital on November 29. After many years of practice in the area, he planned to leave the community at the end

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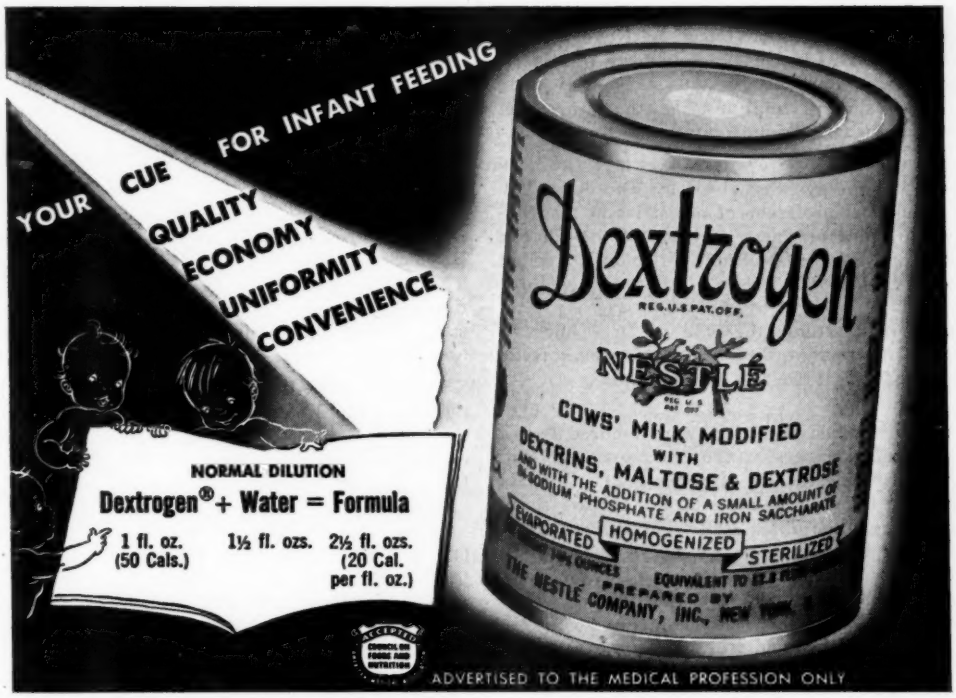


of December to become company physician for the Flour City Ornamental Iron Works in Minneapolis.

A member of the Glenwood Hospital staff since the opening of the hospital in 1940, Dr. Rydburg served as acting chief-of-staff last year. He was secretary of his county medical society for three years and had been named president-elect. He was president of the Brooten school board and had served as mayor of Brooten for five years.

* * *

It was announced on December 1 that **Dr. Kenneth L. Nelson** of Clara City planned to move to Balaton on December 15 to open an office for the practice of medicine. The village of Balaton has been without a resident physician for several years.

* * *

**Dr. Carl C. Chatterton** was the principal speaker at a meeting of Section 1 of the Child Psychology Study Circle in Saint Paul on December 5. The title of his talk was "Off to a Good Start." Dr. Chatterton is chief-of-staff of the Gillette Hospital for Crippled Children and is an assistant professor of clinical orthopedic surgery at the University of Minnesota Hospitals.

* * *

At a meeting of the **Minneapolis Chapter, American Academy of General Practice,** in Minneapolis late in November, Dr. Willis L. Herbert was elected president to succeed Dr. Willis M. Duryea. Other officers include Dr. C. W. Del Plaine, who succeeds Dr. J. H. Higgins as vice president, and Dr. Alexander J. Ross, who succeeds Dr. James A. Blake as secretary-treasurer.

* * *

Three county medical societies held a joint meeting in New Ulm on November 17. The three groups were the Brown-Redwood-Watonwan County Medical Society, the Blue Earth County Medical Society, and the Nicollet-Le Sueur County Medical Society. Principal speaker at the combined meeting was **Dr. Ben Sommers,** Saint Paul, who discussed the treatment of heart diseases.

* * *

After thirteen years of practice at Albert Lea, **Dr. Robert R. Swanson** moved to Madison and became associated with the Madison Clinic on December 1. In his new position, Dr. Swanson is chief of the eye, ear, nose and throat department of the clinic, replacing Dr. Walter N. Lee, who recently moved to California.

After graduating from the University of Minnesota Medical School, Dr. Swanson spent three years specializing in eye, ear, nose and throat diseases at Western Reserve University Hospital in Cleveland. Following that period of training, he opened his offices in Albert Lea.

* * *

**Dr. Edward B. Kinports,** International Falls, and his family spent two weeks in November at a ranch near Tucson, Arizona. While in Tucson, Dr. Kinports took a special course at St. Mary's Hospital.

Members of the Winona County Public Health Association, meeting in Winona on November 10, heard **Dr. Karl H. Pfuetze,** superintendent of Mineral Springs Sanatorium, discuss the benefits of mass chest x-ray surveys and describe the procedures used in modern sanatorium treatment of tuberculosis.

* * *

A talk on allergy was given by **Dr. Albert V. Stoesser,** clinical professor of pediatrics at the University of Minnesota, at a meeting of the Chelsea Heights Child Psychology Study Circle on November 22.

* * *

**Mrs. E. H. Hartung,** the wife of Dr. Elmer H. Hartung of Claremont, died in a Rochester hospital on November 30 at the age of forty-two.

* * *

**Seven Mayo Clinic physicians** were honored as new emeritus staff members at the clinic's annual staff meeting in Rochester on November 21. The six men and one woman each received an honorary scroll and a gift from the clinic staff. The new emeritus members are Dr. Walter C. Alvarez, Dr. Harry H. Bowing, Dr. Arthur U. Desjardins, Dr. Della G. Drips, Dr. Bert E. Hempstead, Dr. Henry W. Meyerding and Dr. Robert D. Mussey.

Mr. A. J. Lobb, legal advisor and former associate secretary of the clinic board of governors, also became an emeritus member at the meeting.

In the election of officers for 1950, Dr. H. I. Lillie was named president of the Mayo Clinic staff. Dr. F. P. Moersch was elected vice president; Dr. E. N. Cook, secretary; Dr. C. W. Rucker, first counselor, and Dr. C. H. Watkins, second counselor.

Dr. James F. Weir, retiring staff president, presided at the meeting. In his talk he paid tribute to Dr. Charles and Dr. William Mayo on the tenth anniversary year of their deaths.

* * *

Open house was held on December 4 by **Dr. Ralph B. Johnson** in his new office building in Lanesboro. The new medical office is constructed of brick and tile and contains a waiting room, x-ray room, minor surgery room and two examining rooms.

* * *

**Dr. Mellvin E. Lenander,** St. Peter, was appointed on December 5 by Governor Luther Youngdahl to the State Board of Medical Examiners, to fill the unexpired term of Dr. Albert Fritsche, New Ulm, who had resigned.

* * *

Offices for the practice of medicine were opened late in November in Richfield (Minneapolis suburb) by **Dr. Marie A. Smith.** A graduate of the University of Illinois, Dr. Smith served her internship at DePaul Hospital, Norfolk, Virginia. She then practiced in maternal welfare and well-baby clinics in Chicago before beginning a residency at the University of Chicago's Lying-In Hospital. Later she served in residencies at Maternity Hospital and St. Mary's Hospital in Minneapolis, then practiced in clinics in Dwight, Illinois, and Milwaukee, Wisconsin.

* * *

On November 16, at the fourth weekly session of the medical postgraduate seminar held in Fergus Falls, **Dr. Robert A. Green** and **Dr. Robert Hebbel** were the principal speakers. Dr. Green, instructor in internal medicine at the University of Minnesota, spoke on "Heart Failure," and Dr. Hebbel, assistant professor of pathology at the University, discussed "Use of Biopsy in Cancer Diagnosis."

* * *

**Dr. Peter H. Cremer** was honored by being named Eminent Citizen of Hastings at an honor assembly held in Hastings on November 28, attended by Governor Luther Youngdahl and high ranking officials of the Minnesota Veterans of Foreign Wars, sponsors of the event. Said the main speaker of the evening in paying tribute to the physician: "Dr. Cremer is a person who put the health of the people above the practical phase of his profession." And he added, "He is more of a health keeper than a bookkeeper."

* * *

**Dr. W. W. Brown,** formerly of Minneapolis, has opened offices for the practice of medicine at Big Lake, which has been in need of a physician for several years.

* * *

A Duluth physician, **Dr. Anderson C. Hilding,** presented a paper at the fiftieth anniversary meeting

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of the Chicago Otological Society in Chicago on December 5. His paper was entitled "Absorption of Air from Various Parts of the Respiratory Tract and Its Relationship to Postoperative Lung Complications."

* * *

**Dr. Morris Fishbein,** former editor of the J.A.M.A., has joined the staff of *Postgraduate Medicine,* a publication edited by Dr. Charles W. Mayo, Rochester, and published in Minneapolis. It was announced that as a contributing editor, Dr. Fishbein would have a free hand in writing editorials, a column on medicine abroad, and his well-known "Dr. Pepys' Diary."

* * *

At a meeting of the city council in Crookston on November 8, **Dr. Russell O. Sather** of the Northwestern Clinic was named city health officer, member of the city board of health, and water, milk and cream inspector. All three positions were formerly held by the late Dr. L. L. Brown. Dr. Sather was appointed to the offices by Dr. M. O. Oppegaard, mayor of Crookston.

On November 15, at a meeting in Bemidji of hospital administrators and staff members from the northwest part of the state, Dr. Sather was appointed a member of a three-man committee to study the shortage of nurses in northern and rural areas of Minnesota. Appointed with Dr. Sather were **Dr. J. A. Cosgriff,** Olivia, and **Dr. W. L. Burnap,** Fergus Falls. The committee will report to the governor's committee on nursing in Minnesota.

* * *

Problems in setting up rural health services were discussed by **Dr. A. B. Rosenfield,** director of District 6 of the Minnesota Department of Health, at a meeting of the Saint Paul Area Public Health Council on November 16.

* * *

**Dr. Samuel E. Bigelow** joined the staff of the Fergus Falls State Hospital on December 1. Dr. Bigelow went to Fergus Falls from Clinton, Iowa, where he had been associated with the Independence State Hospital for more than a year. Before that, he was on the staff of the Sante Fe Railroad Hospital at Fort Madsen, Colorado.

* * *

It was announced on November 9 that **Dr. J. A. Watkins** would soon become a member of the newly formed Cottonwood County Clinic in Windom. At the time of the announcement, Dr. Watkins was completing a residency in anesthesia at the University of Minnesota. He has taken postgraduate training at Wayne County Hospital in Michigan.

* * *

**Dr. Charles W. Mayo** and **Dr. Waltman Walters,** Rochester, have been appointed members of the national American Legion medical advisory board for 1950.

Open house was held at the newly constructed Edina Clinic on November 23. Occupants of the modern two-story structure include **Dr. C. V. Rockwell** and **Dr. R. G. Tinkham.**

* * *

In Duluth on November 11, **Dr. Mary McCoy** celebrated her nintieth birthday anniversary. Although she retired from practice in 1938, Dr. McCoy still maintains an active interest in medicine.

A graduate of the University of Michigan Medical School, Dr. McCoy began practice in Duluth in 1890, shortly after completing her internship at a Columbus, Ohio, hospital. The start of her medical career, she recalls, had a reverse twist: she promptly contracted typhoid fever and spent the first seven months of her practice as a patient.

Two of Dr. McCoy's sisters also became physicians. One, Dr. Theresa Abt, still practices in Chicago and was in Duluth to celebrate Dr. McCoy's birthday. The other sister is the late Dr. Helene K. Knauf of Jamestown, North Dakota.

* * *

**Dr. Harold W. Hermann** has become associated in the practice of pediatrics with Dr. A. E. Karlstrom in Minneapolis. Dr. Hermann formerly was in practice in Caledonia with Dr. J. J. Ahlfs.

* * *

A husband and wife, both physicians, began practice in Jordan on November 19. They are **Dr. and Mrs. Paul Strahler,** both graduates of the College of Medicine at Marquette University. They both served their internship at the Medical Center in Jersey City, N. J.

* * *

**Dr. Albert Faulconer,** Rochester, presented a paper entitled "Some Observations on Post-Anesthetic Encephalopathy" at the fourteenth annual assembly of the United States Chapter, International College of Surgeons, in Atlantic City on November 11.

* * *

Announcement was made on December 8 that **Dr. Francis W. Lynch** of Saint Paul had been elected vice president of the American Academy of Dermatology and Syphilology.

* * *

Among the Minnesota physicians who attended a **continuation course** in traumatic and pediatric surgery at the University of Minnesota November 10 through 12 were Dr. Robert Gruys, Windom; Dr. B. W. Bunker and Dr. Frank E. Mork, Anoka; Dr. A. H. Borgerson, Long Prairie; Dr. Clarence Jacobsen, Chisholm, and Dr. Franklin C. Anderson, Owatonna.

* * *

In Brainerd, **Dr. W. E. Fitzsimons** and **Dr. M. D. McGeary** have moved into new offices in the east end of the Benson Building. Their new quarters include a waiting room and six examining rooms, all air-conditioned and modern in design. Associated with them in the clinic is a dentist, Dr. J. E. Echternacht.

* * *

It was announced on December 1 that **Dr. Albert C. Martin** would begin medical practice in Luverne about February 1. At the time of the announcement Dr. Martin was located in Harvey, Illinois.

* * *

**Dr. Frederic J. Kottke,** associate professor of physical medicine at the University of Minnesota, spoke on "Goals of Rehabilitation" at a meeting of the Minneapolis and Hennepin County Community Chest and Council on December 14.

* * *

At the AMA mid-year clinical session in Washington, D. C., on December 6, **Dr. A. B. Baker** and **Dr. Joe R. Brown** described rehabilitation possibilities of persons suffering from various neurological disorders. The basis of their presentation was the work done at the Minneapolis Veterans Hospital. Dr. Baker is director of neurology at the University of Minnesota, and Dr. Brown, who is now at the Mayo Clinic, has been on the University and Minneapolis Veterans Hospitals staffs.

* * *

The city of St. Peter acquired a new physician in December when **Dr. Harold S. Orwoll** became a staff member of the St. Peter Clinic. A graduate of the University of Chicago Medical School in 1946, Dr. Orwoll served his internship at Chicago Memorial Hospital. He then practiced at the Brewster Clinic in Holdrege, Nebraska, before moving to St. Peter. In his new location he is associated in practice with Dr. E. G. Olmanson and Dr. Helge Sandelin.

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Mantoux tests were administered to children in Jackson County schools during November and early December. The testing was done under the direction of **Dr. Helen B. Wolff,** medical director of District 5 of the Minnesota Department of Health.

* * *

**Dr. Herman J. Moersch,** Rochester, has been appointed a member of the executive committee of the Minnesota Public Health Association.

* * *

**Dr. James M. Thomson** has opened offices for the practice of medicine at the Edina Medical Center, 3939 West Fiftieth Street, Edina (Minneapolis suburb). Offices are maintained in the same building by Dr. Harry C. Jensen and Dr. Francis M. Walsh. Dr. Irvin H. Moore, who formerly was located in the building, has moved his offices to 5013 France Avenue.

* * *

At the annual meeting of the **Interurban Academy of Medicine** in Duluth on November 16, Dr. James Easton, Superior, was elected president to succeed Dr. W. J. Strobel, Duluth. Other officers named were Dr. A. J. Bianco, Duluth, vice president, and Dr. Milton Finn, Superior, secretary-treasurer.

The principal speaker at the meeting was Dr. John S. Hirschboeck, Milwaukee, who spoke on "Significance of the Blood in Medical Diagnosis."

* * *

**Dr. Herbert Plass,** Minneapolis, discussed voluntary health insurance at a meeting of the Minneapolis branch of the American Association of University Women on November 14. Dr. Plass is co-chairman of the Hennepin County Medical Society's speakers bureau. The meeting was the second of a series devoted to national health problems.

* * *

It was announced on December 2 by **Dr. Eugene L. Zorn** that his practice in Erskine would be taken over on a part-time basis by two Red Lake Falls physicians. Dr. Lester N. Dale and Dr. James H. Reinhardt of Red Lake Falls planned to provide Erskine with a physician's services on two full days and two half days each week.

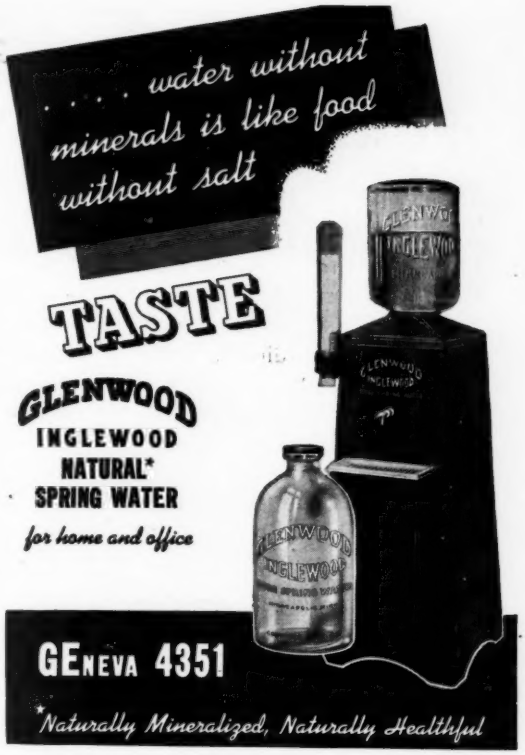
* * *

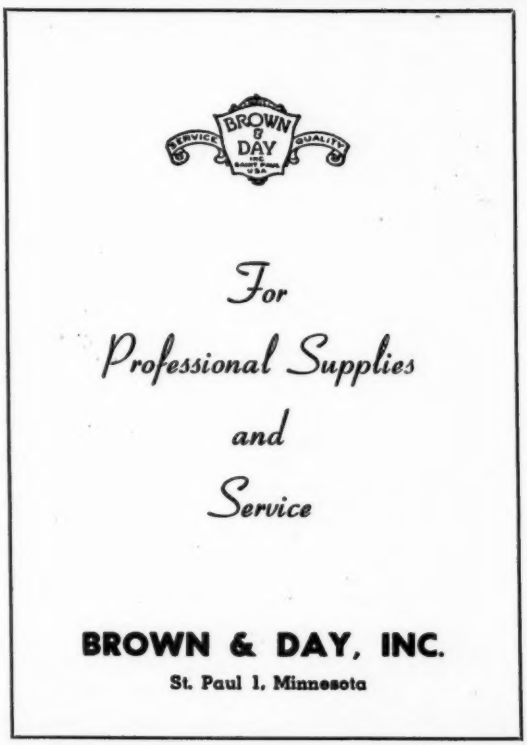
The offices of **Dr. Willmar C. Rutherford** and **Dr. Robert L. Cushing** have been moved into a newly constructed building at 505-507 Washington Street in Brainerd.

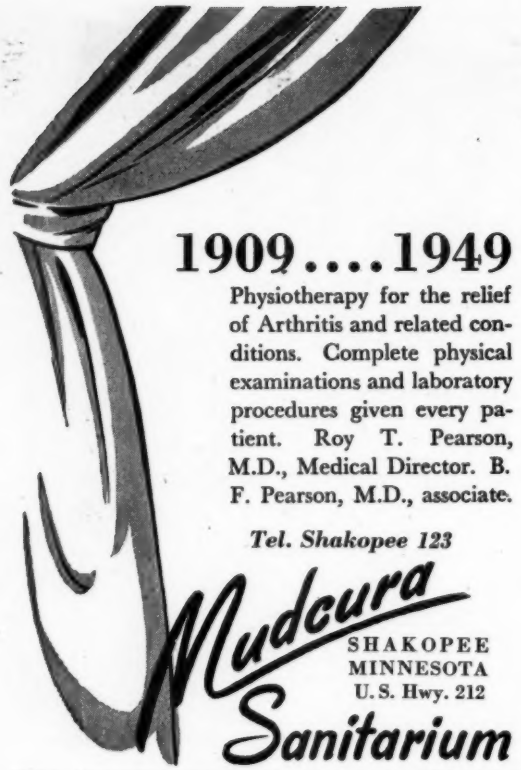
* * *

Why don't more college-trained women reach the top of their profession? This was the question that four professional women, including **Dr. Ruth Boynton,** director of student health at the University of Minnesota, attempted to answer at a meeting of the Minneapolis branch of the American Association of University Women on December 5.

The four women—a physician, a dentist, a lawyer and an architect—agreed that the biggest problem a professional woman faces is the prejudice of other women. A woman, it was suggested, feels inferior to a man, and to boost her morale she believes that

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other women can't be as capable as other men. Therefore she refuses to consult a professional woman.

* * *

**Dr. John D. Camp,** Rochester, presented a paper entitled "The Roentgenologic Significance of Intracranial Calcification" at a meeting of the Radiological Society of North America in Cleveland early in December. Other Rochester physicians attending the meeting included Dr. J. R. Hodgson, Dr. D. G. Pugh and Dr. Martin Van Herik.

* * *

The **University of Minnesota** now ranks second in enrollment of full-time students. According to a survey by Dr. Raymond Walters, the University of California leads the field with an enrollment of 43,426 students, the University of Minnesota is second with 24,684, and the University of Illinois is third with 22,854. There seems to be no unanimity of opinion as to which of all the universities in the country is the best.

* * *

**Dr. Andy Hall** of Mt. Vernon, Illinois, was chosen the General Practitioner of the Year by the House of Delegates at the Third Clinical Session of the AMA in Washington, D. C., in December. Dr. Hall, still active at the age of eighty-four, has been mayor of Mt. Vernon, head of the township board, chairman of his Republican county committee, Illinois director of public health, a company surgeon in the Spanish-American War and chief of surgery in a base hospital in World War I, secretary and president of his county medical society, president of the Southern Illinois Medical Society and a councilor to the Illinois State Medical Society.

* * *

The health magazine **Hygeia,** published by the AMA since 1923, will change its name to Today's Health beginning with the March, 1950, issue. The new name is more descriptive of the aims and contents of the magazine. Beginning with the January issue, the magazine will be edited by Dr. W. W. Bauer, with Dr. William Bolton as associate editor.

* * *

**Dr. H. O. McPheeters** and **Dr. C. V. Kusz,** both of Minneapolis, presented a discussion on "Varicose Veins and Thrombophlebitis" at a meeting of the Stearns-Benton County Medical Society in St. Cloud on December 15.

* * *

**Dr. Irving C. Bernstein,** who was on leave from the University of Colorado School of Medicine and was associated with the Oliver Clinic in Graceville for the last six months of 1949, has returned to his post in Colorado. He is in the department of psychiatry of the medical school, located in Denver.

* * *

At the annual meeting of the **Minnesota Obstetrical and Gynecological Society,** held in Saint Paul on December 2, Dr. James Swendson, Saint Paul, was elected president of the group. Other officers named were Dr. W. F. Mercil, Crookston, vice president, and Dr. John A. Haugen, Minneapolis, secretary-treasurer.

* * *

**Dr. John Noble,** who recently completed a residency in medicine at Augustana Hospital, Chicago, became associated with the Oliver Clinic in Graceville on January 1. Dr. Noble is a graduate of the University of Illinois College of Medicine.

* * *

**HOSPITAL NEWS**

At the annual meeting of the medical staff at **Abbott Hospital,** Minneapolis, in early December, Dr. O. J. Campbell was named staff president. Dr. Campbell, a clinical professor of surgery at the University of Minnesota, has been a member of the Abbott Hospital staff for twenty years.

Other officers elected include Dr. John Haugen, vice president, and Dr. Walter Hoffman, secretary.

* * *

A sale of articles made by patients at **Glen Lake Sanatorium,** held at the Dayton Company in Minneapolis in November, brought in $2,805.85 in proceeds. The sale was sponsored by the Woman's Auxiliary to the Hennepin County Medical Society, which reported that the proceeds were a substantial increase over the previous year's sale.

* * *

**BLUE CROSS-BLUE SHIELD NEWS**

Minnesotans received over $1,000,000 in Blue Shield medical-surgical benefits during the first eleven

months of this year. In November alone, Blue Shield paid three and a half times as many claims as during the same month in 1948.

Minnesota Blue Shield paid 3,195 claims in November, 1949—an average of 106.5 claims a day. In November, 1948, Blue Shield paid 886 claims—an average of 29.5 claims a day. In medical-surgical benefits this amounted to $83,413.62 more in November, 1949, compared with the November, 1948, Blue Shield benefits.

To date this year, Blue Shield subscribers have received $1,026,814.53 in medical-surgical benefits. Last year, Blue Shield subscribers received $152,224 in medical-surgical benefits during the same eleven-month period.

Enrollment in Minnesota Blue Shield has increased to cover 244,419 persons as of October 31, 1949.

The number of Minnesota doctors participating in Blue Shield has also increased. Fourteen doctors joined Blue Shield in November, making the total Minnesota doctors participating in Blue Shield 2 568. There is a considerable number of newly licensed doctors, however, who have not sent in their enrollment cards. Blue Shield urges all doctors who haven't as yet sent in their cards to do so as soon as possible.

Soon after the first of the year, Minnesota Medical Service, Inc., will mail statements of Blue Shield earnings during 1949 to all doctors to whom Blue Shield has made payments in excess of the amounts listed below:

State of Minnesota return—payments in excess of $500 per year

Federal Income Tax return—payments in excess of $600 per year

Cost of hospital services has continued to increase, and a greater number of Blue Cross subscribers have used hospital care. The average length of stay in the hospital for Blue Cross patients has decreased, however.

From January through October this year, payments to hospitals for Blue Cross subscribers' care amounted to $6,931,257.16—an increase of $1,190,586.87 over the amount paid out during this same period in 1948.

A review of the national scene shows an enrollment of 12,554,012 persons in United States and Canada in seventy-three Blue Shield or other non-profit prepaid medical service plans, as of June 30, 1949.

More than 35,000,000 persons in the United States and Canada were enrolled in non-profit Blue Cross hospital care plans on September 30, 1949. Blue Cross has enrolled 22.11 per cent of the total population of the forty-seven States and the District of Columbia served by Blue Cross, and 22.99 per cent of the combined population in the seven Canadian provinces served by Blue Cross plans.

Eight Blue Cross plans now have an enrollment of more than 1,000,000 members. Minnesota's Blue Cross plan is nearing that enrollment figure with 963,111 persons in Minnesota enrolled as of October 31, 1949.

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Surgery of Colon and Rectum, one week, starting March 6.
Esophageal Surgery, one week, starting June 5.
Breast and Thyroid Surgery, one week, starting June 26.
Thoracic Surgery, one week, starting June 12.
Gallbladder Surgery, ten hours, starting April 24.
Fractures and Traumatic Surgery, two weeks, starting April 17.

**GYNECOLOGY**—Intensive Course, two weeks, starting February 20.
Vaginal Approach to Pelvic Surgery, one week, starting March 6.

**OBSTETRICS**—Intensive Course, two weeks, starting March 6.

**PEDIATRICS**—Intensive Course, two weeks, starting April 3.
Personal Course in Cerebral Palsy, two weeks, starting July 31.

**MEDICINE**—Intensive General Course, two weeks, starting April 24.
Hematology, one week, starting May 8.
Gastro-Enterology, two weeks, starting May 15.
Liver and Biliary Diseases, one week, starting June 5.
Gastroscopy, two weeks, starting March 6.

**DERMATOLOGY**—Formal Course, two weeks starting May 8. Informal Clinical Course every two weeks.

**UROLOGY**—Intensive Course, two weeks, starting April 17.
Cystoscopy, ten-day Practical Course, every two weeks.

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## BOOK REVIEWS

**Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.**

HANDBOOK OF MEDICAL MANAGEMENT. Milton Chatton, A.B., M.D., Instructor in Medicine, University of California Medical School; Sheldon Margen, A.B., M.D., Clinical Instructor in Medicine and Research Associate in Medicine, University of California Medical School; and Henry D. Brainerd, A.B., M.D., Assistant Clinical Professor of Medicine and Pediatrica, University of California Medical School, Assistant Clinical Professor of Pediatrics, Stanford University School of Medicine, Physician-in-Charge, Isolation Division of San Francisco Hospital. 476 pages. Price $3.00. Palo Alto, California: University Medical Publishers, 1949.

FROM THE HILLS. An Autobiography of a Pediatrician. John Zahorsky, M.D. 387 pages. Price $4.00, cloth. St. Louis: C. V. Mosby Co., 1949.

CONGENITAL ANOMALIES OF THE HEART AND GREAT VESSELS. Thomas J. Dry, M.D., et al., of Mayo Clinic. 68 pages. Illus. Price $4.50, cloth. Springfield, Illinois: Charles C. Thomas, 1949.

ESSENTIALS OF OBSTETRICAL AND GYNECOLOGICAL PATHOLOGY. Second Edition. Robert L. Faulkner, M.D., F.A.C.S. Assistant Professor of Gynecology, Western Reserve Medical School; Associate Gynecologist, University Hospitals of Cleveland, Ohio. 357 pages. Illus. Price $8.75, cloth. St. Louis: C. V. Mosby Co., 1949.

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CLINICAL OPHTHALMOLOGY FOR GENERAL PRACTITIONERS AND STUDENTS. H. M. Traquair, M.D., F.R.C.S., Ed., Consulting Ophthalmic Surgeon, Royal Infirmary, Edinburgh; Ophthalmic Surgeon, Chalmers Hospital, Edinburgh; Oculist to the Edinburgh Municipal Hospitals; Late Lecturer on Diseases of the Eye, Edinburgh University. 264 pages. Illustrated. St. Louis: The C. V. Mosby Company, 1948. Price $9.00.

This book was written specifically for the use of general practitioners and students. It is short and comprehensive, covering the common office ophthalmological problems.

FRANK ADAIR, M.D.

STEDMAN'S MEDICAL DICTIONARY. Seventeenth revised edition. Edited by Norman Burke Taylor, M.D., University of Western Ontario. 1361 pages. Illus., including color plates. Price $8.50 with thumb index; $8.00 without thumb index. Baltimore: Williams and Wilkins Company, 1949.

The seventeenth edition of this well-known medical dictionary is a useful and attractively bound reference book. In the preparation of this revision, the publishers state, obsolete words were deleted and old definitions revised. Most of the trade names found in the last edition have been removed, and no new ones have been added. The inclusion of brief biographical sketches of the principal figures in the history of medicine constitutes a new feature of the dictionary.

The book is well illustrated with clear line drawings and several color plates. Though no more at fault than many other dictionaries, this volume would be improved if the definitions were set in slightly larger type.

J.H.L.

CONTROL OF PAIN IN CHILDBIRTH; ANESTHESIA, ANALGESIA, AMNESIA. By Clifford B. Lull, M.D., F.A.C.S., F.I.C.S., Director, Division of Obstetrics and Gynecology, Philadelphia Lying-in Unit, Pennsylvania Hospital, and Robert A. Hingson, M.D., F.I.C.S., F.A.C.A., F.I.C.A., Associate Professor of Obstetrics; Anesthesiologist, Department of Obstetrics, Johns Hopkins University and Hospital; Surgeon, United Public Health Service; with an introduction by Norris Vaux, M.D. 3rd ed. rev. and enlarged. 522 pages Illus. Philadelphia: J. B. Lippincott Company, 1948. Price $12.00.

In reading the first edition of Lull and Hingson's "Control of Pain in Childbirth," one immediately gets the impression that the book was written as an epitome on the use of intermittent caudal anesthesia. This is understandable in view of the introduction and popularization of this method of relief of pain in labor and delivery by the authors.

The third edition brings the reader up to date on caudal anesthiesia, results and techniques, with additional material, such as modifications in caudal techniques in very obese women and a section entitled "A Further Evaluation of Caudal Anesthesia" in reviewing the literature from the time of the first edition to the present. The paragraph on the use of continuous caudal anesthesia in the hypertensive toxemias has been expanded. The recent work done by Whitacre on the electro-encephalographic changes showing reversion toward a more normal brain wave pattern after relief of vasospasm by regional nerve block is quoted as support for the use of the intermittent caudal technique in eclampsia.

An entirely new section on the place of intravenous

anesthesia by Louis M. Hellman of Johns Hopkins is a worth-while addition to the book. Another valuable addition is the fairly extensive description of the techniques and results of saddle-block anesthesia as used by Parmley and Adriani and in Dieckmann's Clinic. In the same vein is a new chapter on continuous spinal anesthesia and its use in obstetrics.

The book concludes with another new chapter, "The Early Care of the Newborn Infant."

This present edition, as its predecessor, is the best work available on intermittent caudal anesthesia in obstetrics and the apparent over-emphasis of this phase of relief of pain in childbirth in no way detracts from the value of the book, since other methods of pain relief are adequately discussed. The volume takes its place as one of the best in a difficult and everchanging field of medicine.

ALBERT F. HAYES, M.D.

INVITED AND CONQUERED. J. Arthur Myers, Ph.D., M.D., Minnesota Public Health Association. 737 pages, 356 illustrations. Webb Publishing Co., Saint Paul, Minn., 1949. Price $6.50.

This engrossing book, written in the author's customarily pleasing style, and dedicated to one of the most persistent yet unsung foes of the disease, is particularly timely this centennial year in documenting all the significant contributions and developments in tuberculosis in Minnesota during the past 100 years. Every incident and detail of anti-tuberculosis work, from the earliest pioneer days in 1659 through the most recent diagnostic technics of photofluorography and therapeutic procedures such as pneumonectomy are presented in chronological sequence. More than 1,900 persons who have played some role in the conquest are accorded their proper place. Pictorially, also, in addition to the photographs of 245 anti-tuberculosis workers, 120 illustrations and 14 graphs enhance the value of the book. It is a monumental and much-needed documentation of medical history, correlating activities within this state with the advances in tuberculosis throughout the world.

First is traced the initial infection of the Indians from the time of Radisson's first landing, in 1659, through the final stages of the New Ulm massacre in 1862. Then the story is told of immigration to Minnesota of people from all over the country and world, all of whom migrated here for the climatic cure of their tuberculosis. Koch's discovery of the tubercle bacillus only slowly was accepted as proof of contagiousness of the disease. It influenced greatly the diagnosis of tuberculosis as did also the introduction of the clinical thermometer in 1867, discovery of tuberculin in 1890, use of the x-ray after 1895 and the bronchoscope in 1898. Another chapter captivatingly tells of the early influx of doctors and the organization in 1853 of what is now the Minnesota State Medical Association, the creation and early history of the Minnesota Department of Health, the birth and foundling years of medical education culminating in the establishment of the University Medical School. Rounding out the first part are two chapters concerned with early mortality of human tuberculosis, and such early efforts to control the disease as reporting cases, quarantine and sanatoriums.

In Part II are reviewed both the lesser and epochal advances in tuberculosis, especially as related to Minnesota persons, organizations and institutions. Of consuming interest are three chapters discussing pioneers, former Minnesotans, and the state's debt to other people. No detail is too small, no incident too trivial, no worker too obscure to be unmentioned in the historical progress against tuberculosis.

Among the institutions and organizations whose development has conditioned and paralleled advances in tuberculosis have been the University Medical School, the Minnesota Board of Health, sanatoriums and others. Here is the full story of the growth of the University Medical School from one small structure and five non-teaching faculty members in 1893 to its present size, with 541 teaching faculty members this year. No less intriguing and important, as far as tuberculosis is concerned, is the story of veterinary medicine and the eradication of tuberculosis in cattle in Minnesota. Even more intimately identified with eradication of human tuberculosis is the State Board of Health. This, too, is a fascinating epic of progress from conflict with other agencies to development of a special Tuberculosis Control Division and eight branch offices throughout the state. How Minnesota's sanatorium situation developed from not a single bed for tuberculous patients in 1900 to 2,200 beds for tuberculous patients in the State Sanatorium and fourteen county institutions provides here engrossing reading for anyone.

Even with discord between official and lay anti-tuber-

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culosis organizations rife early in this century, there ultimately emerged an effective Minnesota Public Health Association. Since 1924, when the present personnel took the reins, this association has energetically and unremittingly employed every method and device to control the disease. Most effective and helpful were the tuberculin testing, tuberculin distributing and finally, the mass mobile x-ray unit and tuberculin testing campaigns. Unique in Minnesota's contributions have been accreditation of counties and schools in reducing the incidence of tuberculin reactors.

No such volume is complete without an evaluation of accomplishments to date, and an entire chapter is devoted to this topic. Comparisons of the mortality of tuberculosis and the numbers of earlier and present tuberculin reactors in various groups, states and the United States are discussed and graphically presented. In fact, this whole chapter is a remarkable testimonial to the effectiveness of the work of the innumerable persons, groups, agencies, organizations and institutions mentioned in preceding pages. Also of indispensable value is the final chapter of mileposts in tuberculosis eradication. Here are listed in almost outline form all the major events from 1659 to date in the history of Minnesota's fight against tuberculosis.

This book is truly a masterpiece of research and a basic contribution to the historical and tuberculosis literature of the state, if not the nation. Certainly, no one interested in the history of either Minnesota or tuberculosis could afford to neglect this book.

EDWIN J. SIMONS, M.D.

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### FISHBEIN HAS COLORFUL CAREER

Dr. Morris Fishbein was born in St. Louis on July 22, 1889. He has had a colorful career during his long tenure with the American Medical Association.

He worked his way through the University of Chicago and Rush Medical College, taking lecture notes in shorthand and selling them to classmates. By 1912, when he received his M.D. degree, he was writing editorials for *The Journal of the American Medical Association.* The following year he became assistant editor of *The Journal* and has been with the AMA ever since, becoming editor in 1924.

In addition to his editorial work with the American Medical Association, Dr. Fishbein has written twenty-two books, edited seven others, writes twelve to fifteen popular magazine articles a year, delivers six or eight lectures a month, conducts medical columns in two magazines, writes a daily syndicated health column for more than a score of newspapers, is medical editor of the Encyclopedia Britannica, and a member of one of the technical advisory committees for the Atomic Energy Commission.

Dr. Fishbein likes to recall his early days with the AMA. When he came to the AMA in 1912, it had eighty employes and *The Journal* had 45,000 subscribers Today, the AMA has 860 employes and *The Journal* has a circulation in excess of 136,000. *The Journal* has more circulation than all other weekly medical journals in the world combined. Its runner-up is the *British Medical Journal* with a circulation of 65,000.

Dr. Fishbein has been in great demand as a public speaker, making on an average of one speech every three days. He speaks with the speed of a machine gun at its deadliest high tempo. A Charlotte, North Carolina, editor once wrote: "Dr. Fishbein doesn't stop for periods between sentences. He flies through these customary stops with the speed of lightning and with the grace of an eagle in its unhindered soar."—*AMA News Release.*

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### STERILITY AWARD

The American Society for the Study of Sterility is offering an annual award of $1,000 known as the Ortho Award for an essay on the result of some clinical or laboratory research pertinent to the field of sterility. Competition is open to those who are in clinical practice as well as to individuals whose work is restricted to research in basic fields or full time teaching positions. The prize essay will appear on the program of the forthcoming meeting of the American Society for the Study of Sterility, which is to be held at the Sir Francis Drake Hotel in San Francisco on June 24 and 25, 1950.

Full particulars may be obtained from the secretary, Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield, Massachusetts. Essays must be in his hands by April 1, 1950.

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